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THE EVOLUTION OF THE BALUSTER.

BY the word "baluster" is understood a column having a swelling shaft, smaller immediately above the base and below the capital than in the central parts; and the term "balustrade" is applied to an open parapet the panels of which are filled in with a series of balusters. The origin of the baluster form and its earliest application to architectural purposes merit more attention than is usually given to the subject in our text-books.

The outline of the baluster is said to have been suggested by the bud, or flower, of the wild pomegranate-tree—the *Flos balaustium*, whence comes its name. The fruit of this tree was sacred to Apollo, as, according to legend, it first sprang from the blood of Atys, a manifestation of the Sun-god, and thus the head of that deity was frequently surrounded with rays of a baluster shape; and so widely spread was this use that early statues of Buddha, found at Gandhara, have within the nimbus rays of the same form. Thus also, by a natural sequence, lamp standards, as light-bearers, became shaped in the same manner, and the candelabra of Classic times assumed their well-known form. It must be mentioned, however, that there is another and less probable theory, which is that, lamps having been the invention, according to Clement of Alexandria, of the Egyptians, the baluster shape of their standards was merely a reproduction of a common type of Egyptian column.

Although among the Greeks and Romans the baluster form had become traditional for the shafts of candelabra, and its grace and beauty of outline had evidently been appreciated by them, they never extended it to the shafts of their columns; and it was left altogether to the artists of the Italian Renaissance to adapt it to architectural purposes. Examples of ancient candelabra had remained in some of the Roman churches, either in use as Paschal candlesticks or for decorative purposes, such as those of Sta Costanza, and Sta Agnese on the Via Nomentana, now in the Vatican galleries, and that in SS. Nereo ed Achilleo, below the Aventine; but these seem never to have suggested imitation during the mediæval period; and it was not until the fashion set in of collecting the remains of antiquity that the idea of copying these Classic forms was realised. The collection made by Squarcione in Padua of specimens, casts, and drawings, obtained during his travels in Greece and Italy, may be regarded as the source from whence the idea of the adaptation of this form to architecture first sprang; while the great picture of the "Triumph of Julius Cæsar," painted by his pupil, Mantegna, before 1488, shows how the beauty of its outline had already appealed to the painter.

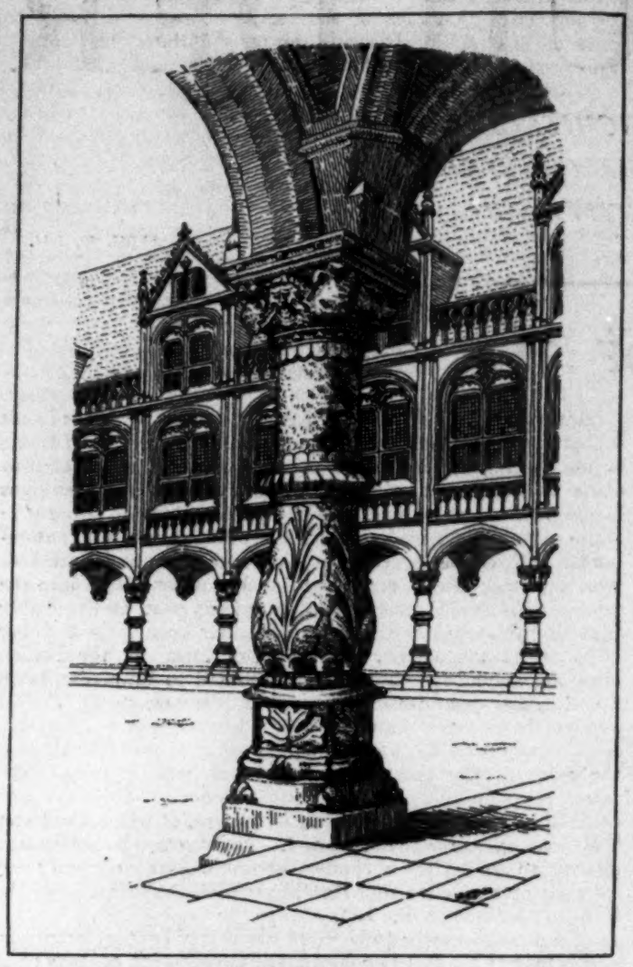
Although we do not now know what candelabra were included in this collection, it is evident, from the nine given by Mantegna in the sixth panel of the Procession, that they more or less accorded with the examples in Roman churches to which we have already referred; and these may be taken as the types on which the architects of the Renaissance moulded their designs. The first mentioned, from Sta Costanza, which we will call type No. 1, is, apart from surface decoration, a simple baluster swelling only in the lower part, standing on a triangular altar or base, and it belongs to the best period of Greco-Roman art. Type No. 2, from SS. Nereo ed Achilleo, is a double swelled baluster, the upper half of the shaft being the reverse of the lower, and standing on a square base, somewhat late and debased Roman in style. No. 3, from Sta Agnese, differs entirely from the other two in that, although the baluster form is repeated in all the parts of the stem, it is built up in sections formed of imitations of *calathi*, or baskets, the lowest one being reversed. This became a very common form in the early revival, and suggested many beautiful variations to the Renaissance architects.

Squarcione is credited with having trained 137 pupils in his school by the aid of his models and casts; and many of them, beside Mantegna, may have caught the idea of the adaptability of the beautiful forms of the candelabra to other uses than light holding. Four at least of the principal architects to adopt it in Italy—Bramante, Amedeo, and the two Rodarios—were contemporary with the later years of Squarcione's life, and Bramante most certainly saw so much of his collection as passed into the possession of Mantegna; while descriptions of it, and probably casts and drawings from it, were familiar to a large number of North Italian artists. In the Print Room of the British Museum, among the engravings attributed to Bramante, is an architectural composition of piers and arches, partly domed and partly in ruins, having in the middle distance a wayside cross elevated on steps and a square altar-shaped plinth, and the shaft of the pillar of a compound baluster form. The plinth bears an inscription which may be read, "*Bramante fecit in Milano*," and this is followed by a date, of which the letter "M" can only now be deciphered. That it owed its inspiration directly to the designs of candelabra is sufficiently obvious; and we shall presently see that the three earliest applications of the form to architecture are traceable to the same origin.

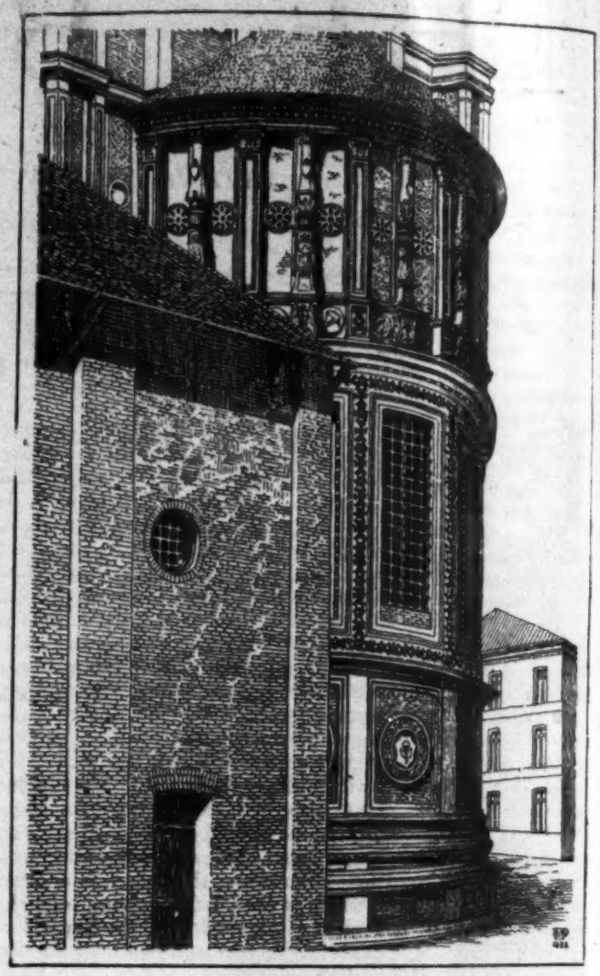
The first instances to be cited are nearly contemporaneous, and belong to the last two decades of the fifteenth century; but they appear rather as ornamental adjuncts than as constructional features. They are to be found in the apses of Sta Maria delle Grazie, Milan, designed by Bramante; in the square-headed windows on the façade of the Certosa at Pavia, by Amedeo; and to the niches which hold the portraits of the two Plinys on the façade of Como Cathedral, by Jacobus and Thomas Rodario, although Solari is credited with having had a hand in the work both at Como and Pavia. The baluster form is very marked in all these three cases; but, though at Milan and Pavia type No. 1 has been in the main followed, all have been modified by type No. 3. On these two types, Nos. 1 and 3, were founded the numerous examples of baluster shafts produced during the former half of the sixteenth century in North Italy, Spain, the Netherlands, and France; and we will endeavour now shortly to show how a knowledge of the form became distributed in these countries by architects, painters, and engravers.

In Italy itself its vogue in architecture was short-lived and confined almost entirely to the so-called *Stile Bramantesco*. The most important example of it is in the Cathedral of Como, in the Porta della Rama, which was made by the Brothers Rodario between 1505 and 1509, and is inscribed with their names. The columns of it are of the storied kind, consisting of baluster-shaped or enriched drums, which in their general appearance suggest the columns of the Beautiful Gate of the Temple in Raphael's cartoon. Though the candelabrum-shaped form continued to be used for some time for finials or as ornaments for shrines and tombs, as in the Shrine of St. Dominic, in Bologna, by Raphael, its employment, save in balustrades, to which we will more particularly refer presently, ceased altogether in Italy.

It was in Spain and the Spanish Netherlands that the baluster-shaped column reached its highest development and became a marked feature of the Plateresque style. Perhaps the first important application of it was on the façade of the Hospital of Santa Cruz at Toledo, erected by Henrique de Egaz between 1505 and 1516; and it is impossible to avoid the belief that its designer was intimately acquainted with the work going on at the same time at Como Cathedral. Although we know that Spanish architects occasionally went to Italy to study ancient models, and the famous Alonzo Berruguette went



Bishops' Palace, Liége.



Sta Maria delle Grazie, Milan.

there for that purpose in 1503 and remained for seventeen years, there are difficulties in the case of Egaz. He was of Flemish descent, though perhaps born in Spain, and is generally supposed to have erected the Colegio Mayor of Santa Cruz, in Valladolid, between the years 1480 and 1492, so that if he went to Italy and saw any of the works we have mentioned it must have been in the intervals of his active practice. He had, however, a son of the same name, of whom it is recorded that he was in Brussels early in the sixteenth century, when he was unable to speak his native tongue. He may in his travels have visited Como and taken home with him sketches of the Rodarios' work, for we see at Toledo, though with many alterations in the details, a reproduction of the Pliny niches and of the Porta della Rama. In 1521 Ibarra erected the cloister of the Arzobisbo in Salamanca, with baluster pilasters to the piers in the upper gallery; and about the same time Juan de Badajos employed them in a similar position in the Convent of San Marcos at Leon. They also appear in the patio of the Casa de la Infanta at Zaragossa, in the Court of the Hôtel Béthune at Toulouse, and in numerous other buildings erected by Spanish architects during the former half of the sixteenth century.

The close intercourse which existed between Spain and the Netherlands, due to political circumstances and the interchange of artistic ideas between the two countries, sufficiently account for the early appearance of the baluster form in the architecture of the northern province; while the drawings of Flemish artists working in Italy had made it familiar to their countrymen. Mabuse was especially fond of introducing it into his pictures as an architectural adjunct, as, for example, in his "Call of St. Matthew," now at Windsor, where there is a very elaborate baluster shaft, and in the "Hercules," now at the Hermitage, where is another much simpler. Holbein, in "Die Fürsten," of the Todentanz series, has an elaborate baluster design, which may have been the original of all the four-post bedsteads. We have already referred to the return from Spain of the younger Egaz, and we find that another Fleming, Jan van der Eycken, who was settled in Toledo in the fifteenth century, but who had returned to Bruxelles, was commissioned by the Municipality of Audenarde in 1505 to prepare a design for their belfry, which, however, does not appear to have been carried into execution.

Baluster-shaped pilasters occur on the façade to the external staircase of St. Sang at Bruges, built in 1533; but the two most important edifices in the Netherlands in which the baluster-shaped column was used were the Bourse at Antwerp and the Palace of the Bishops at Liége. The Bourse was erected about 1531, and was a few years since destroyed by fire, but several columns in blue stone, extremely like those at Liége, were saved. The Palace at Liége was in building during the former half of the sixteenth century, but the columns of blue stone, which form so remarkable a feature in the design, were wholly executed between 1532 and 1536 by a Liégeois sculptor named Bordet, who, we are told, was given a free hand in their design; and, as we

Type No. 1. Sta. Costanza. | Type No. 2. SS. Marco ed Achilleo. | Type No. 3. Sta Agnese F.M.

Candelabra from Roman Churches.

know so little of his history, we can only surmise that he had seen and drawn his inspiration from some Plateresque building. At the same time, in many of the details he retains much of the local Gothic feeling, and in the transposition of the baluster portions of his shafts he shows less regularity than do the Spanish examples.

In spite of its general employment in the contemporary work of adjacent countries, the baluster column was practically unknown in France. The earliest architectural influences of the Renaissance came from the Milanese; but there the *Stile Bramantesco* had quickly died out and but little affected French architects. Nevertheless the bulbous form in pinnacles, buttresses, and ornamentation generally had considerable vogue, particularly in the designs of Hector Sohier. The baluster shafts round the chapels of St. Pierre at Caen, the work of this architect between 1518 and 1545, are similar in many respects to those by Bramante at Milan; while the pinnacles at the east end of Notre Dame, Dieppe, presumably the work of the same man, are distinctly the reproduction of candelabra forms.

In England, Germany, and Northern Europe the baluster form was but rarely used except in balustrades; but something akin to it, though quite reversing its leading characteristics and far less graceful, was adopted in its place, and was very common during the latter half of the sixteenth and the former half of the seventeenth centuries. This was derived from the Herms which Michelangelo, or perhaps his pupil, Raffaelle da Montelupo, had adapted to the architectural framework of the tomb of Julius II. in S. Pietro in Vincoli. But the Northern architects in their treatment of the form submitted it to some grotesque modifications; they omitted the human head and, perpetrating an architectural pun, put in place of it a moulded capital. Their pinnacles they treated in the same manner, and in place of the graceful curves of the baluster they substituted the squareness of the obelisk, and reproduced above their cornices an inverted copy of the pilaster below.

But though, as we have now seen, the use of the baluster-shaped column was limited to certain districts and a comparatively short period, the baluster, as it appears in parapets and balconies, has obtained universal acceptance wherever the Italian style of architecture has been adopted. But it was a long time after its appearance as an architectural feature that it was first so applied; and the architects of the early Renaissance, as well as those who in the *Stile Bramantesco* had been the first to adopt the form in pilasters and columns, never used it in parapets. In the Pitti Palace at Florence the crowning parapet is made up of a series of little columns of the ordinary type; and when later balusters were substituted the form adopted was not the one they had hitherto used. They employed the double reversed baluster of type No. 2, like the Paschal Candlestick of SS. Nereo ed Achilleo, and as it appears in the group of candelabra, already referred to, in Mantegna's triumph. It is certainly lighter and more graceful than the other form; and, as used in Scamozzi's Library of St. Mark at Venice, it was first employed in Italy, Spain, and England. But by the influence of Palladio and others of his school it was gradually displaced by the simpler and more robust form of type No. 1, or with occasional variations of the square high-shouldered herm type, and thus is almost universally employed. The free use of balustrades on modern Classic buildings is apt to become almost nauseating; but the baluster form is undoubtedly a graceful one, and we owe its invention and use to the Renaissance architects of the School of Bramante.

NOTES.

Board of Trade Competition.

AN unofficial list of ten architects reputed to be those selected in the preliminary competition for the Board of Trade Offices having been given in the Press, it becomes a question whether it would be well to have this list officially confirmed or denied. This list seems to be substantially the same as one which has been in our possession for some weeks, but which, in deference to the wishes of the assessors, we have kept from publication. We entirely appreciate the motive which appears to have suggested this quite unusual, even unprecedented, course of withholding the names of the selected competitors till after the final competition is over; but this course seems to have given rise to a good deal of unfortunate rumour and to have caused a certain amount of annoyance to some of the competitors. Answering congratulatory letters on false rumours of success is rather trying to those who are doing their best to forget they have failed. Possibly the Office of Works would have been better advised if they had announced their intention of withholding names when issuing the conditions of the competition. Indeed, it is arguable that, having invited competitors to compete under certain conditions, they are not justified in altering or adding to them without the consent of the competitors. No doubt the assessors would prefer to remain in ignorance of the names of those taking part in the final competition, and from every point of view there are advantages in such an arrangement. The difficulty is to carry it out in practice. It is impossible for successful competitors to keep their secret from friends and assistants, and information is bound to percolate through the whole profession in course of time; and this perhaps may be a disadvantage inherent in the nature of a double competition. By carefully avoiding their acquaintances and all places of professional resort till the danger is past the assessors may succeed in remaining in ignorance of what everybody else knows. But the most self-denying and sportsmanlike of assessors can hardly be expected to refrain from reading the newspapers; so we suppose it may be taken for granted that their ignorance has now been enlightened. In all the circumstances of the case we are inclined to think it would be best to publish an official list.

Underground Traffic Facilities.

WITH the completion of the underground works at Charing Cross that have been in progress for some two and a half years proper connections have at length been established between the District Railway and the Hampstead and Bakerloo Tubes. Charing Cross will now become one of the busiest interchange stations in London, with a calculated yearly traffic of 15,000,000 passengers, of whom 7,000,000 will be interchange passengers. It is time that the inconvenience caused by the lack of proper communication at this important traffic crossing should finally disappear. We suppose it was only owing to our habit of doing things piecemeal, and with no general comprehensive scheme, that it was ever allowed to come into existence. There is still room for further connections between different lines, and need for further simplification of the rabbit-warrens of our underground traffic systems, which betray so much lack of straightforward simplicity of planning. We imagine the public will not always be content to twist and turn and collide with one another at traffic crossings in the present bewildering and irritating way, or to walk such needlessly long distances between the platforms and the lifts as often have to be faced.

Boulter's Lock in Danger.

THE beauty of the banks of the River Thames being a national asset that cannot be too jealously guarded, the proposed sale of the greater part of the island at Boulter's Lock, near Maidenhead, is a matter of public concern. Unless previously disposed of by private treaty this island will be sold by auction on April 23. Considering its attractions as a building speculation, there seems a danger that it may be purchased for the purpose of erecting a riverside hotel or other such building, which may entirely destroy the beauty of one of the most attractive spots on the Thames—the centre, too, of the up-river pleasure traffic. When the lock was enlarged a few years ago, and the old mill destroyed, it was generally understood that the Thames Conservancy would preserve the old Mill House and see that the general amenities of the place were not interfered with. This impression, however, now appears to be unfounded. We should be glad to hear that those local authorities most concerned have taken steps to preserve this island from being cut up into building plots.

The Ancient Monuments "Department."

THE adoption by H.M. Office of Works of the monogram A.M.D. (Ancient Monuments Department), to mark, as at Dartmouth Castle, their work of reparation to old buildings, raises an interesting question of policy. To go back two years, the 1912 Report of the Inspector of Ancient Monuments records the formation of a special staff to deal with the work. Later, the Joint Committee of both Houses of Parliament which considered the proposed ancient monument legislation recommended the creation of a separate department, a recommendation which the First Commissioner of Works during the Second Reading of the recently-passed Ancient Monuments Bill promised to carry out. As this brief *résumé* shows, a special staff and a separate department are, then, not one and the same. The distinction lies in the fact that the members of a department are not, as a matter of routine, interchangeable with those of another department. Thus an official who has been engaged upon, say, the building or the fitting-up of labour exchanges could not suddenly, through the exigencies of promotion or what not, be called upon to supervise temporarily the preservation of ancient monuments, or *vice versâ*. The First Commissioner's promise, coming as it did at the end of his speech moving the Second Reading, might have been supposed, by analogy with a certain famous document, to be "inoperative" were it not for the recent adoption by H.M. Office of Works of the monogram A.M.D. The use of it must, therefore, be considered as an intelligent anticipation of the future, for, at present, as the recently published Civil Service estimates prove, there is no such "department." The few who have been engaged on the work of preservation realise how important experience is. Still more important is it to those to whom is encharged the duty of safeguarding the nation's monuments.

THE ARCHITECTURAL ASSOCIATION:

SIXTH SPRING VISIT.

UNLESS designedly arranged to be taken in conjunction with the University Boatrace, it was perhaps not the wisest judgment which chose Saturday, March 28, for a visit to Roehampton, and those members who sought to follow out the official advice as to route found themselves uncomfortably placed in a block of traffic on Putney Bridge at the moment when they should have been assembling at the Lodge of St. Serf's House in Priory-lane, Roehampton. A considerable proportion of the very large muster thus almost entirely missed inspecting this very delightful house by Mr. F. S. Chesterton, and in so doing missed the most attractive feature of the afternoon's programme, as the house, though in no way pretentious, is instinct with good taste and domestic feeling, and bears the impress of personal devotion in every detail. The site is an old kitchen garden formerly attached to Downshire House, and by placing the building as it stands the advantage of the lines of old fruit trees as part of the lay-out was secured. It was begun two years ago, and recently extended with the primary object of housing a large picture. The whole of the interior is quite simply treated, the walls for the most part being painted, though it is necessary to add that they are most interestingly painted, with numerous calculated effects of stippling, combing, scumbling, and other devices. The dining-room is treated with raised panelling, and a bold bolection-moulded marble fireplace opening. The morning-room is panelled and finished grey; the small drawing-room is also painted grey, including the enriched cornice. The large drawing-room makes a rather more grandiose appeal, and is approached by a flight of oak stairs through an octagon anteroom with corner cupboards for china. On the first floor are nine bed and dressing rooms, three bathrooms (somewhat daringly treated as to wall-colouring), a book-room, which seemed to breathe the spirit of repose and seclusion, and a "wardrobe landing," sufficient to satisfy the most exacting of lady clients. The top floor has a further eleven bedrooms, two bathrooms, box, tank, and linen rooms, with a separate staircase to the menservants' quarters. The detail throughout the house is a robust Georgian, treated, however, with admirable restraint and entirely escaping that over-insistence on architectural features which is apt to disturb the domestic character of much modern work in this manner.

The next building visited was Roehampton House, originally built by Thomas Archer in or about the year 1712. Beside the main portion there formerly existed two wings connected to the central block by curved arcades convex to the main front. In the large extensions now in course of erection from the designs of Mr. Lutyens these arcades (which are in existence, though the wings have been demolished) have been worked into the scheme of the new addition. The scope of the new work rather recalls Mr. Lutyens' brilliant remodelling of Temple Dinsley. As in that case, the old comparatively small rectangular three-story house forms a centre from which radiate linking blocks two stories in height joining up further three-story end blocks set at right angles to the axis of the main block. In advance of these on the entrance front are smaller two-storied pavilions containing the servants' quarters and connected to the main building by the arcades mentioned above, that on the north also serving to screen the one-story top-lighted kitchen and domestic offices. Above the low one-story convex arcades, the linking buildings are planned on a concave reverse curve.

The detail of the old centre block has been closely followed in the links and end blocks, and, although this was no doubt the right course to follow, the frequent repetition of narrow strip pilasters of red brick on the grey stock walling has not the happiest effect, and the angle piers of the end blocks, though similar in idea to those at Temple Dinsley, have not the same stately repose owing to their rustication giving a certain pettiness of scale. The choice of material to be used for the additions must have been a difficult problem. The original house was in yellow stock brick with red dressings and Portland stone centrepiece, all of which have weathered so little that they appear even yet somewhat hard. The extensions are faced with Crowborough stocks with Norris' red dressings, and are also rather lacking in texture—an unusual thing in Mr. Lutyens' work. The old house does not show its roof, but in the extensions a pitch roof of green slates stands confessed. Further additions are contemplated. The new internal work had not reached an interesting stage, such detail as appeared being of the original house and including the painted hall (ascribed to Thornhill) and a beautiful old staircase with carved spandril brackets and moulded soffit, now refixed in the north wing. The new main staircase, which will be situated in the south link, is not in position. Part of the interior has been temporarily plastered, and the work in the south wing is being designed by Sir Herbert Jekyll, who is also superintending some alterations in the gardens.

The last visit on the programme was to the new bowling green and terrace added to Downshire House by Mr. Chesterton. This was built on the site of an old house pulled down three years ago and utilises some old walls and portions of the outbuildings. It is interesting to know that the green has only about 5 in. of soil on the old brick rubble, and was used within six months of completion. The new brickwork of the terrace walls and garden house is very satisfactory. It is built in cement with the joints brushed out, of Nyewood bricks from Rogate, Sussex. There is a sparing use of Portland stone, a pleasant lead fountain modelled by Mr. Stephen Webb, and a view over Richmond Park which was a revelation to anyone unfamiliar with this spot. Members were most hospitably entertained at tea by Sir Stephen and Lady Gatty, and returned to town feeling that they were amply compensated for the troubles of the journey.

THE PROVINCE, AIMS, AND LIMITATIONS OF THE AMATEUR IN ART.*

I WISH to say a few words to you on the province, aim, and limitations of the amateur. But I must at once remark that in using the term "amateur" I wish to exclude any conception of it which is implied in the adjective "amateurish" or in the noun "amateurishness." If the activity of the amateur in any way tends to lower the standards and ideals of art, both as regards the workers themselves and the public taste, I should have nothing to do with it, and I know I am justified in saying this Society would not.

The amateur is, in the first instance, the lover of art, and we may hope that the professional artist in so far is the same. The essential difference between the two, in my mind, is that the one devotes all his time and energies to the pursuit of art, so that it becomes his profession, and the other does not.

Now, we are fortunate in our country in having had in the past, and having in the present, an active tradition, out of which most important and beneficent work for the good of the people as well as for the advancement of our higher and intellectual life has arisen, through men who were not definitely professionals in the work they thus produced. Grote and Ricardo and Mill—and, in one sense, even the great Darwin—were not professional men of science and learning according to the conceptions prevailing, let us say, in Germany and France; and I may say that the late Lady Waterford and the water-colour draughtsman, Brabazon, were both clearly amateurs. It can, therefore, not be maintained with any approach to absolute truth that the pursuit of any higher spiritual vocation ought only to be limited to those who have devoted their whole lives to such a pursuit and have made it their profession.

Nor ought there to be any essential difference in training, though the professional artist will have to devote his whole time to it, while the amateur may only be able to give a part of his time. But the methods and spirit of this training ought in no way to be different between the two. There are many instances in the history of art in which the training that led up to a great and lasting work was not of the recognised professional order. We are told by ancient authors that one of the greatest sculptors of ancient Greece (Lysippos) was an auto-didact—that is, one self-trained, not having passed through the regular schools or apprenticeship in art. I can remember from my boyhood days, when I was studying musical composition, being told by my strictly professional and academic teacher that Wagner was an amateur as regards composition. Still, such instances must remain exceptional. The training of the amateur ought in its thoroughness of method and spirit to be the same as that of the future professional artist, only that in quantity it cannot go so far. I have often heard it said that in our art schools, especially in our State-aided art schools, the amateur ought to be excluded, as he lowers the standard of teaching. If this be the case there is absolutely no reason why it should be so. Teaching in art ought, above all things, to be thorough, and ought to inculcate from the very outset the seriousness and the supreme difficulty of its craft side. It ought never to be contaminated by a more superficial amateurish spirit and method. It will then do its duty, not only by the professional, but by the amateur as well. Let me merely suggest to you a complete analogy. Our Universities ought to teach every department of science and scholarship in the highest professional spirit. But only a small percentage of the students benefiting by such teaching will become absolute specialists in these several departments in after life. Though the teaching aims at preparing the minority for their work, the large mass of the students attending the lectures and demonstrations of the professors will in after life turn to some other work. At least, they will derive the highest form of general education out of this period of their training as thoughtful and cultured men, raising the standard of cultivation for the whole nation. In so far most of the students are amateurs. Even for those furthest removed from the special work in after life the training which they get in science or learning was better for having been given to them in the spirit of the highest and purest professional specialism than if it had been prematurely lowered to meet the more diffused and attenuated wants of their varied after life. The same emphatically applies to our art teaching by which the amateur also may benefit. In no case need the standard of teaching be lowered, and emphatically ought not to be so. One of the great lessons which the amateur thus trained is to learn is to realise how hard it is to do good work in art which will make him modest, lead him to appreciate the difficulties, raise his knowledge and standards of what good art is, and, above all, teach him the limitations prescribed to him in his future art work as an amateur.

The true amateur thus taught will learn the great lesson that there are certain departments, phases, and provinces of art work to which he or she cannot aspire. They must leave to the professional artist the great fresco painting in a cathedral, the large Turneresque landscape on a scale corresponding to the vastness of the subject, the multiform and intricate composition of a scene full of action and conveying thoughts and deep passions. But within these limitations they must approach the whole world of Nature and art that comes within the compass of their capabilities with the same seriousness, the same conscientious and concentrated work, as the professional artist. Though they are amateurs their work will then not be amateurish. I remember Joachim surprising an amateur violinist as he was playing Schumann's "Abendlied," and saying, without flattery, with sincere conviction, "Why, I could not have played it better myself!" Had the amateur attempted to play Brahms's Violin Concerto the great master would certainly not have said that. That Violin Concerto is beyond the reach of the amateur, and, should he attempt it, he will be amateurish, presumptuous, almost immoral. But there are many "Abendlieds" for the painter and sculptor, the draughtsman in pen and ink, and the decorative artist. Let him work at these in the spirit of the professional and he will certainly do no harm to himself and others. On the contrary, he will raise himself to a higher level, not only in the artist world, but as a moral and social being as well.

In this sense you are highly justified in the work you are doing, and this Society is a good institution that ought to be encouraged by all who have the good of art at heart—nay, by the general public as well.

* An address delivered by Sir Charles Waldstein at the opening of the Royal Amateur Art Society's annual exhibition, March 25.

Yet I have often heard artists railing at the amateur and maintaining that he lowers the standard of art throughout the whole country and does harm. I do not agree with those who speak thus. I do agree with them that, among our national virtues there exists a national vice, which I should call, if not contempt of true professional work, at all events depreciation of its high standards. Our public does not always show the piety and respect for the lofty ideals of thorough spiritual work, nor do they show consequent regard which they ought to show to the representatives of art, science, and literature as professional men who have devoted the whole of their life to the realisation of such ideals. Have you noted how, on any gathering to commemorate the work of institutions in science, art, or letters, the chief speeches are made by public men in no way connected with such work, and how, through the almost exclusive attention which the Press pays to such utterances, excluding the weighty words of the workers themselves, the public drinks in all the amateurish platitudes which these public men enunciate with an emphasis in no way warranted by experience or knowledge? It is enough to be a public man or to possess any notoriety to justify the most frivolous inroads into the serious work of science, art, philosophy, or literature. Now, this is a distinct encouragement of amateurishness. Such men are amateurs in the worst acceptation of the term, and the public who pays them serious attention is thereby lowered in the standards of its appreciation of true work. I can in this connection not refrain from reminding you that even the artists themselves are guilty of the same moral crime. Many of them are not aware of the fact that the study of the history, theory, philosophy, and criticism of art demand a whole lifetime of arduous concentrated professional study—sometimes specialised into one shorter period of history or to one definite department of art work—and that they demand completely different methods and attitudes of mind from the production of pictures and statues or any other artistic product and craft. Yet they will talk authoritatively in total ignorance of the seriousness of such work because they may have painted a picture or modelled a statue. They are supremely unaware that they are amateurs in this department of human studies, and it depends upon the recognition of their limitations whether they will become amateurs in the good sense or in the worst sense of that term.

But to return to your own work. The true amateur is really the greatest boon to the artist. He develops in himself and diffuses among the public the interest in art and the love of it. To say the least, he trains in himself the power to understand the work of the artist, as our millions of musical performers learn the appreciation of music through their practice. Above all, your work teaches you to observe and study nature correctly, intimately, and lovingly. The Englishman's love of nature, on the artistic side, is certainly not due to his love of sport; but it has been fostered and furthered by generations of amateurs sketching with the pencil or in water-colours, and I sincerely hope this practice will not die away among us. There is no reason why you should not devote yourselves to such work, and there is every reason why you should. Societies like your own and exhibitions like this one maintain and spread the interest in art all over the nation. You are doing good work, and I congratulate you on it.

In fine, let me repeat this one most important injunction: Limit your ambitions to what you can carry out thoroughly and adequately, and then, while you are working, work in the spirit of the true artist. Don't be satisfied with any part of your work that is below this standard. You will then be doing good to yourselves, and you will give pleasure to others through your work. Whatever thy hand findeth to do, do it with thy might.

GYMNASIUM, STAMFORD HILL, N.

The old Orion Gymnastic Society, once of Hackney and now of Stamford Hill, are erecting new premises at East Bank, Stamford Hill, N. The building will contain a gymnasium and a badminton court. The architects are Messrs. Hood Brothers, Union-court, Old Broad-street, E.C., and the general contractors are Messrs. J. A. & N. S. Stewart. It is hoped that the work will be finished by September next.

INDIAN WATER GARDENS.*

If we have not been in India perhaps the first thing that comes to our mind is some haunting line of Sadi's, or Omar Khayyám's, or of Moore's "Lalla Rookh," some vision of marvellous scenes in the "Vale of Cashmere"—

> Where the waterfalls gleam like a quick fall of stars,
> And the nightingale's hymn from the Isle of Chenars.

But to you who know India and the modern Indian garden the reality is now very different, is it not? For the old gardens are by no means easily to be found, and the mid-Victorian landscape park in the arid climate of Central and Upper India is, frankly, not a success.

We all know the Anglo-Indian public park, with its bare acres of unhappy-looking grass, its hideous iron railings, ugly band-stand, and forlorn European statues, its wide objectless roads, scattered flower-beds and solitary trees, and, worst of all in a hot country, its usual lack of fountains and running water.

With what relief one turns again to the old Mughal baghs, and, passing from the dust and glare outside, pauses in the shadow of some deep entrance arch, watching the delicious cool glitter of the hundred little fountains, their pearly spray breaking the reflections down the long canal. Marigolds fill the parterres. Rose sprays trail in the water. Dark cypresses, orange-trees, and palms frame in on either side the distant white pavilion; or maybe it is a garden tomb to which the double paths lead up.

To live in an Indian garden kept up in the old style is to plunge at once below the surface of Anglicised India.

Here I should like to say that my interest in Indian art is not primarily archæological. Nor do I plead for a pseudo-Mughal revival at new Delhi. India is religious; art is an active force, a part of reality and life, and it is obvious that the path always lies onwards. But to understand and appreciate any phase of Oriental art achievement its underlying history and symbolism must be kept in view.

There are two distinct yet constantly intermingling styles traceable in the history of Indian gardening—the Hindu and Buddhist garden of early India days and the Central Asian garden, which, although it owed no doubt much to the old Buddhist influences, was more definitely introduced into India by the garden-loving Emperor, Mohammed Babar. Both styles may be briefly traced to the two main influences which underlie all national arts—climate and religion.

The typical Mughal flowers are all spring flowers, and all the Persian poets join with old Omar in his lament: "Alas, that spring should vanish with the rose!"

But even the poet's roses were not the first essential in the garden. The soul of an Eastern paradise hides not in the flowers, the grass, the trees, but in the running water which alone makes its other beauties possible. Thus the need of irrigation dictated the whole arrangement of these great Central Asian enclosures.

Their plan is of extreme simplicity. It was the four-fold field-plot of Babar, illustrated also by the Eden of our Bible, and by the Hindu mythological geography of the world. This was a Holy Land, with Mount Meru in its midst, from which the waters of a secret spring flow north, south, east, and west in four great fertilising streams. On the central mount grows the sacred tree, the Tree of the Knowledge of Good and Evil, with Naga, the holy water snake, the embodiment of the spring, coiled about its roots. All nations would seem to have joined in this early conception of a Paradise, so that the Indian garden as it stands to-day represents for us probably the oldest and certainly the most definite garden plan.

Back to these simple pieties we are led by the Hindu custom prescribing the laying out of a garden as a religious function, of which the distinctive rite is the formal marriage of the fruit-trees by the garden well; two of the finest young trees being planted beside the conduit head.

The Hindu and Buddhist garden, though evidently resembling that of Central Asia in plan, had no such extensive need of irrigation. The Indian flora, together with the difference of climate, gave it a very distinctive character. Apart from the artificial mound called the Pleasure Hill in its midst, its outstanding features were the mango, asoka, and champaka groves; the bignonia, jasmine, and convolvulus bowers; and the lotus and water-lilies floating on the ponds.

One of the most intimate and vivid illustrations of Babar's famous diary represents the Emperor laying out the garden of Fidelity at Cabul. "To the south," he says, "on rising ground I formed a 'char-bagh'"—literally four gardens; but the word bagh is equivalent to our "country house," or to the Italian meaning of the word "villa." "In the garden," he continues, "there is a small hillock, from which a stream of water sufficient to drive a mill incessantly flows. The four-fold field-plot of the garden is situated on this eminence. At the time when the orange becomes yellow the prospect is delightful. Indeed," he adds, with pardonable pride, "the garden is charmingly laid out."

"It always appears to me," Babar writes after his final conquest of 1526, "that one of the chief defects of Hindustan is the want of artificial watercourses." Here I am reminded we must not take the Emperor Babar too literally as to "the defects of Hindustan." Like many modern travellers he was tempted to generalise quickly. The Buddhists and Hindus had an elaborate system of irrigation. This may have broken down in Upper India after centuries of incessant change and warfare. But there is little doubt that Hindu gardening still flourished wherever the Mohammedans had not penetrated. Even within recent years the royal palace at Mandalay, so Sir Richard Temple tells me, was, when he first saw it, a perfect example of an old Hindu pleasance, a type of garden which in these moister climates developed into the well-known and charming landscape styles of China and Japan.

The Mughals, with their fine traditions, laid most stress on choice of site. Babar was too wise a gardener to suppose that he could build a great garden without a great idea or a great opportunity; hence his disgust with the arid monotony of the country round Agra.

In the Agra Palace fortress there is a small and very perfect garden. It is called the Anguri Bagh—the Grape Garden. Its stone parterres, each plot, with its little entrance and exit for the irrigating water, illustrate to perfection a design on which countless Eastern rugs are based. The Anguri Bagh lies empty now. Grass alone grows in the parterres. The whole garden looks like some great elaborate jewelled design rifled of its coloured gems, turning its gaping, empty setting to the sun.

From India paintings of the seventeenth, eighteenth, and even nineteenth centuries, as well as in out-of-the-way gardens, behind whose purdah walls English influence has not penetrated, some idea can be gathered of the planting of the Paradise baghs, whose beauty formed the leading inspiration of Mughal decorative art, and still underlies the whole artistic world of the Indian craftsman.

Whatever building or smaller work of art we turn to, the same garden motive appears—in the beautiful flower-bed dadoes of the Private Hall of Audience beyond the Grape Garden, in the similar dado round the Taj, in the well-known rose-water vessels and flower vases, the fruit plates and wine cups of the Persian and Indian tiles, it is equally to be found. Bouquets of flowers cover the fine gold embroidered muslins; flower borders edge the soft Kashmir shawls, and twine lightly in and out of the pages of much-prized writing. The miniature portraits of the emperors and their nobles often show a garden background, and in nearly every case the figure holds in one hand a sweet-scented flower, some rose or narcissus, painted with precise, delicious skill. The rippling pattern of the water is seen on every hand; pavements and platforms are inlaid to represent the garden tanks; the same motive echoes the charm of the waterfalls on embroidered rugs and hangings. The best-known and most beautiful theme of all, the entwined cypress and fruit tree, which appears and reappears in embroideries and paintings, on carpets, rugs, and tiles, was taken directly from the garden avenues, where cypress and fruit trees planted alternately were the favourite symbols of life, death, and eternity; the solemn background of the deep-toned cypress, emblem of death and eternity, contrasted with the waving, delicate sprays of rosy almond tree or silvery-flowering plum, emblems of life and hope.

The Empress Nur-Jahan, wife of Jahangir the fourth Mughal Emperor, shares with Babar the credit of having made many lovely water

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* Part of a paper read before the Indian Section of the Royal Society of Arts, on March 10, by Mrs. Patrick Villiers-Stuart.

gardens. Of all her pleasure palaces perhaps the most beautiful, as well as the most famous, are those of Shalimar, Achibal, Verinag, and the building on the Manasbal Lake, now fancifully known as Lalla Rookh's garden. These are all in Kashmir.

It is pleasant to find what a pride and delight both Indians and Kashmiris take in the old Imperial Gardens. Bustling sightseers are a rare occurrence, but the famous baghs are always full of real garden lovers. All great festivals and holidays are celebrated, if possible, in a garden. Crowds come from the city, bringing their women-folk, their babies, and their birds. Students take their books and work under the trees. A day in one of these vast walled water gardens is an event which appeals as much to purdah ladies as to the very poorest class. The great Emperors, who planned them and lived in them—Babar, Akbar, Jahangir, and his Nur-Jahan—are far more vivid personalities in India than Elizabeth and the Stuart sovereigns are in England; and every Indian speaks with a lingering regret of the days of the older Empire, "when the Gardens were in their splendid prime."

Allowing for the difference due to climate, the Mughal baghs and their English contemporaries of the sixteenth and seventeenth centuries are curiously alike. In both styles the garden was confined by high boundary walls; in both the whole scheme of house and garden, buildings and planting were treated throughout in definite relation to each other. Towers in the East and garden houses in the West were an invariable feature marking the corners of the walls. The cistern fountains seen in European illuminations might have played in the Garden of Fidelity; the "pleached allies" and "proper knots" of English gardeners were the vine pergolas and geometrical parterres of the Mughals; while their central platform or pavilion answered the same purpose as the banqueting hall on the "mound," without which at one time no English noble's garden was complete.

The scheme of the Mughal garden, based as it is on the most simple and scientific principles for an irrigated garden in a dry climate, stayed unchanged in the plans. But the fresh environment altered its aspect. The Moslem garden, despite its Paradise plan, was a worldly place. It was a charming luxury. It was the special attribute of the Court, of rich men, and of princes. The quaint conceits and symbolism of its planting were largely drawn from Persian secular literature. With Hindus, on the other hand, a garden is an essential. Flowers and the leaves of certain trees are the first requirements in the proper performance of daily worship. And no jungle or wild flowers may be used, for the offerings are worthless unless picked in the giver's own domain.

Many fresh and charming ideas stepped into the Moslem garden with Akbar's Rajput queen. But the greatest change the Hindu influence wrought was the introduction of the moonlight garden—a change from the sunlit Turki gardens, with their rose pergolas and glorious parterres, to moonlight Indian gardens of dark trees, white flowers, white paths, perfumes, and lights. The Hindu pleasance is planned essentially for evening enjoyment. Not that the Mughals failed to see the beauty of night. Babar, who so loved the glowing rings of the camp fires, had his Mahtab Bagh, one may be sure. But the Indian flowering trees being at their best in the hot weather and the rains, especially when the cool evening breeze brings out their perfume, Hindu ladies until recently rarely entered their gardens except at night.

It follows that decorative lighting was, and is, a very distinctive feature in Indian garden craft, and one, from the nature of things, but little understood by Europeans. Now, what with the adaptability of electricity, and our modern French and English artists' obvious delight in the contrast of blue twilight and the rosy warmth of artificial light, the little lamps may once more gleam from under the waterfalls, and many other charming traits of Indian gardening be developed or revived.

Swimming-baths are another delightful feature. Swings, too, adorned the terrace set apart for the women of the family. Their arches, built of stone or marble and elaborately carved, form characteristic garden ornaments. That at Deeg is placed on a platform under the trees, where the swinger could sway through the nearest fountain spray.

Although in Rajputana and the lesser Native States something of the old skill lingers, in British India, and wherever English influence has been strong, the typical Indian gardens have been the first to go, and the old symbolic garden-craft the first of all the traditional arts to disappear.

Among the early discussions which arose over the building of the new Delhi I seem to remember reading somewhere a delightful account by Lord Curzon of our proposed public buildings as planned after the Mughal garden style. He foretold the ensuing confusion, the dislocation of the wheels of government, which in India, at least, run so smoothly. A weighty meeting of the Council might be rent by a sudden sharp burst of the early winter rains and the consequent rush for umbrellas. Precious documents, now safely pigeon-holed, might be lost in real earnest. Even the day's work might be scattered far and wide by the rising wind of afternoon, the hot weather's boisterous herald, who would be sure to send the thin typewritten sheets to play hide-and-seek with the falling pipal leaves, in and out through the open loggias and pavilions.

Charming to live in, perfect as a setting for social ceremonial, clearly the Indian water garden is but ill adapted for an office.

But apart from offices and their like, need we in a hot climate repeat all the dreary necessities, even the mistakes, of a cold civilisation? That is a question which will have to be faced and answered more and more frequently as time goes on in India. By our power to answer it we shall be judged.

I have often been warned by English people not to lay too much stress on symbolism as a motive in Oriental design. But can we consider it too deeply, if we would understand the Oriental designer? Practical considerations of structure and convenience are the foundation of all plans, but in the East plans are no sooner founded than they are furnished with corresponding symbols.

The possibilities of the new Delhi are, I think, not even yet fully realised—how its interest centres in the Badshahi Mahal, the Imperial Palace and its gardens. For what are public institutes and pleasure-grounds, fine secretariats, alien Gothic cathedrals, Grecian post-offices, Roman forums, beside the Indian home of the Father of his people, the palace buildings of an Emperor who is Vishnu's Viceroy upon earth?

In a vast continent, where temples, churches, mosques, forts, and even palaces but serve to mark and divide men and creeds, all might yet meet in a garden. Hindu and Mussulman might both recognise their own symbols there, where the waterfalls and whispering trees would murmur to us of that power, which, for all our restless Western cleverness, we miss. There Indian women, when they come to greet their Queen or her representative, would each be welcomed by her own flowers and their legends, and the garden would speak for us better than ourselves. Laila would be there on her rose-bush mound, or happy with her Majnun in the parterres; with scarlet asoka trees, Kama Deva's champak buds, and tulsi in the terrace vases; while the Lilies of Our Lady and the Lotus of the Good Law would share the gardens with the pink rose of the Persian poets and the red rose of England. Nor need we confine ourselves or our Indian craftsmen to imaginative reproductions of the past. New needs and our modern wealth of flowers would give fresh life and loveliness to ancient symbols and ideas, charms to rival and surpass all the older Shalimars. There, as in classic and Renaissance pleasure-grounds, busts and statues, memorials of illustrious men, might gaze on us from niches round the walls; great thoughts and deeds might shine among the shadows of the trees—India's heroes honoured in the garden of their Emperor. We are unimaginative, I know, but I think two places have an appeal beyond all others for the average Englishman—Windsor and Westminster. Why should not Delhi have her "Garden of Great Deeds"?

India is the Holy Land, not only of Hindus, but of all the Buddhist Further East. The meeting there of East and West might stand for something more profound, more enduring than any Empire has yet proved. The palace of an eastern king at Delhi might fitly symbolise a new Palace of Peace and Understanding for the future, in which West and East tend to draw near and ever nearer each to each.

ARCHITECTURE AND THE STAGE:

THE ART OF THE THEATRE.

MR. NORMAN WILKINSON, whose work at the Savoy Theatre has lately been attracting much attention, delivered an address on Stage Scenery on Thursday, April 2, at a meeting of the Junior Art Workers' Guild, held in Clifford's Inn Hall.

The lecturer said that in the three great periods of the theatre—the Greek period, the French theatre at the time of Molière, and the Elizabethan period—there was no attempt at illusion; that the stage scenery did not try to trick the audience into believing, for instance, that they really were floating down the Nile with Cleopatra, to take an example from Shakespeare. Instead, the playwright put a descriptive passage into the mouth of one of the characters which conjure up the scene before the mind's eye. Shakespeare knew that he could not imitate the Nile on the stage satisfactorily enough to deceive his audience, and did not try, showing a common sense and a knowledge of the theatre, the lack of which was, the lecturer thought, the great weakness of modern writers. He pointed out, however, that even while Shakespeare was writing his masterpieces for a people's theatre, a really national theatre, there were such things as Court Masques, and it was through them that the evils of the pictorial method had crept in. He felt that the art of the theatre had as little to do with pictorial scenery as with anything.

Proceeding to discuss modern deceptive scenery, Mr. Wilkinson said that one of its weak points was that it involved discrepancies between the two dimensional scenery and the three-dimensional figures in front of it. In painting, say a woodland scene, the forms would have to be expressed in light and shade, but it would be quite impossible to get the figures of the actors in the same light and shade. They could never be made to look as if they actually were standing among the trees, and so a feeling of insincerity was introduced. If there was any art of the theatre from the visual point of view, he felt it must be three-dimensional. What had to be done was to build round the figures something which would help on the action; but the author must write with a knowledge of what could be done in the theatre. Modern authors wrote plays in their studies, often without ever having been on a stage. Shakespeare was a theatre man, and gave real opportunities for genuine art to the decorator. But the plays must be studied as he wrote them, not as subsequent editors had "improved" them. In the quartos there was no such scene mentioned as "The blasted heath." All Shakespeare said was, "Enter three witches." The lecturer said that his own practice was to read the play as the author wrote it, and then try to give a simple background which should express as far as possible the emotion or dramatic feeling of the words. He kept the front and back stage of the Elizabethan theatre and played in rapid succession on them without interrupting the action of the play. He found at once that there could be no scenic illusion, and reduced his requirements to the bare necessary properties, such as chairs and tables, and, in addition, only tried to give some beautiful effect of light, colour, or line in harmony with the words.

As regarded authors, he felt that they ought to come into line. The author was not the sole consideration in a play. The art of the theatre was a composite thing, as Mr. Gordon Craig had pointed out.

A lively discussion took place at the close of the lecture. Among other questions put to Mr. Wilkinson, someone asked him how he would set about designing stage scenery for such a play as "Strife." The lecturer admitted that he hadn't the slightest idea, but suggested that that fact was good reason for presuming something wrong with the play—in fact, a lack of the sense of the theatre in Mr. Galsworthy. Further pressed, he admitted that the bulk of modern plays seemed to him unsuited for presentation on the stage, a rather drastic but perfectly logical conclusion, if it be granted that the art of the theatre really is a composite thing, of which the stage decorator is an integral component. But we venture to think that this is not so. Mr. Wilkinson himself, in his opening paragraphs, admitted that Shakespeare substituted written descriptions appealing to the mind's eye for stage scenery appealing through the natural eye. The only conclusion to be drawn is that Shakespeare, who knew better

than anyone else the capacities and possibilities of the stage, relied for his most ambitious effects on the power of the spoken word and not on scenery of any kind. His idea was that the play was the thing, and everything else should be as inconspicuous as possible. And we think he was profoundly right. He knew that the human mind can only take in one thing at a time. It cannot take in the effect of scenery at the same moment that it is listening to an actor. The more artistic and beautiful the scenery the less attention will be paid to the words. Hence, Mr. Wilkinson's strikingly effective stage effects of colour and line, though they may be, and indeed generally are, in perfect sympathy with the play, yet obtrude themselves fatally between Shakespeare and the audience. We go to the Savoy with pleasurable anticipation, but it is to see Mr. Wilkinson's latest triumph rather than to listen to the play. We get a real æsthetic emotion from these productions, while from the more realistic settings associated with the name of Sir Herbert Tree we only get a childish pleasure in their amazing ingenuity and a vulgar curiosity to see just where the real grass ends and the painted canvas begins. But in neither do we get down to the play itself. And we never shall till managers discover the simple fact that the people who pay at the box office are the *audience* and not *spectators*.

At the Apollo Theatre an excellent curtain-raiser, under the title of the "Quod Wrangle," the action of which takes place in a slum interior, is followed by a comedy in three acts, entitled "Things We'd Like to Know," which is well staged and acted in a most finished way, the leading parts being taken by Mr. Charles Hawtrey, Mr. Lyston Lyle, whose representation of Colonel Apthorpe is a masterly performance, and Miss Dorothy Gedge, a part taken by Miss Dorothy Minto. The changes which can be made by differing types of decoration are well evidenced by the contrast between "The Offices of Wilberforce Brothers' Turf Commission" in the first act, and the same offices redecorated as the "Offices of the Lotus Publishing Company" in the second act, which is a well and appropriately designed interior, to which a somewhat frivolous appearance is given by the wreaths, which are centred on the pilasters at one end, while the other end marks the angles of the panelled wall spaces between. The scene-painter has here allowed himself a liberty which we trust will not be followed by the architectural profession. Still, these are details which do not detract from a most excellent and pleasing piece of light comedy, well conceived and acted throughout by a cast without weak members.

At the St. James's Theatre "A Social Success," by Mr. Max Beerbohm, now precedes that excellent play, "The Two Virtues," and the two plays go very well together and have been deservedly well received. The story of "A Social Success" is that of a bored young man about town who, to end the rain of invitations that pours upon him as a result of his "confounded popularity," pretends to cheat at cards. His friends leave him, but one by one they all come back again, loving him more for the sin he has committed and declaring that there are worse things than cheating at cards. The two plays are very well acted and staged.

THE INSTITUTE OF BRITISH DECORATORS:

EIGHTEENTH-CENTURY DUBLIN.

Mr. J. D. Crace presided on Tuesday last week, at Painters' Hall, Little Trinity-lane, at a meeting of the Incorporated Institute of British Decorators, when Mr. John Sibthorpe gave an illustrated lecture on "Eighteenth-Century Dublin."

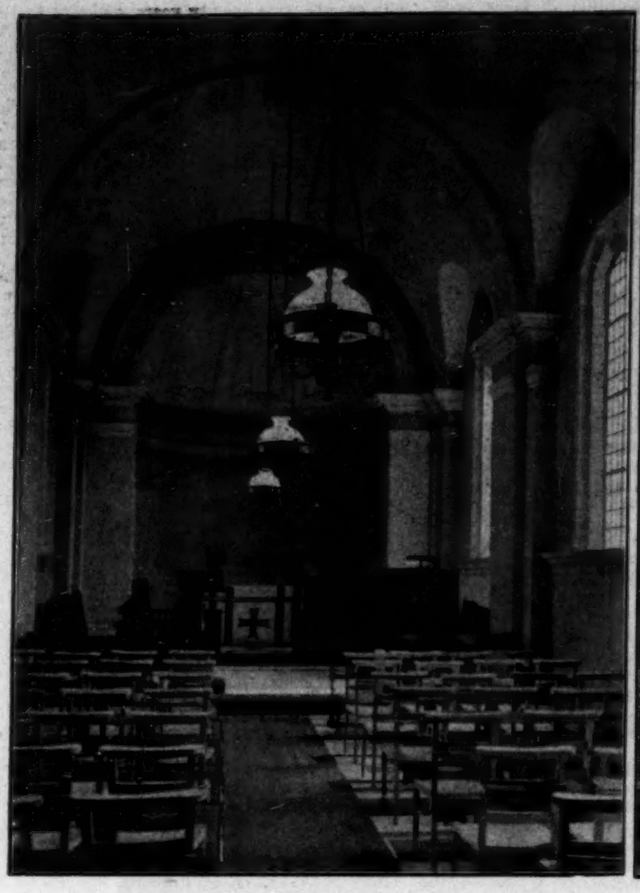
Mr. Sibthorpe said the full title of his address was "Historic Mansions of Dublin of the Eighteenth Century," and he proposed showing a number of portions of mansions arranged in chronological order. He had selected them, not so much as being particularly good specimens of the art of the period, but to show the men by whom and for whom they were built, and so to illustrate the spirit of a most eventful period. Cardinal Newman wrote that if he were an Irishman he would be a rebel; and it was hard to read the history of the eighteenth century without endorsing that sentiment. Prior to the eighteenth century the race had been enriched by the addition of three most valuable elements. First there came the dour solid Lowland Scots, who settled in Ulster; then came Cromwell's veterans, mostly from East Anglia, who settled in the south of Ireland and Leinster; and later on came the Huguenots from France. These made for the prosperity of the Irish, but the tariff laws of England drove them to New England. After they had left the state of Ireland became miserable in the extreme. The country was governed from England through the Irish Parliament in College Green, and bribery became rampant. It was bribery by the gift of sinecure offices and peerages, but it was for these men that Dublin began to spread itself into the country. The first street to be opened up in the new century was Dawson-street, commenced in 1705. In 1710 Dawson built a residence for himself and shortly afterwards sold it to the Corporation for a Mansion House. The next street opened up was Henrietta-street, to the north of the city. It was built by the Right Hon. Luke Gardner, M.P., Vice-Chancellor of Ireland, who practically held the country's purse. It was the first of many streets he built, and, when he became Viscount Mountjoy, Montjoy-square was opened to celebrate his rise on the social ladder. The first house he built was one for the Archbishop of Armagh. Mr. Sibthorpe showed a photograph of two of the ceilings in No. 15, Dawson-street, built in 1712, which, he pointed out, rather lent towards French art. One of the results of the investigations made by the Georgian Society in Dublin was that the tradition that all the plaster-work was done by Italian artists was almost exploded. It had been found that there was a good healthy school of Dublin plasterers working in the seventeenth century, and even into the eighteenth. Photographs were shown of houses built by Gardner and sold to Lady Blessington and to the Master of the Rolls of the time, and the lecturer remarked that Gardner was able to secure official appointments, and afterwards to find tenants for his houses. Gardner was little more than a speculative builder, but it was a blessing that he had Richard Castle as his architect. Castle's work was always recognisable by his cushion friezes. In Dublin they had been in the habit of speaking of Castle as a Dutchman, but it turned out that he came from Saxony, which accounted for the circumstance, which was a great puzzle to him (the lecturer) when he visited Dresden, that he felt so much at home. It was due to the great similarity of the plaster-work to that in Dublin. Castle left his mark right up to the eighteenth century; his influence was so strong that it was not until many years after his death that a new style came in. A photograph of the plaster-work in No. 10, Henrietta-street was shown, which Mr. Sibthorpe said was quite like Dresden work, although the handling was bad. The impression it left on him was that the artificers had not yet grasped the spirit of the drawings which Castle gave them. As a rule, Castle's staircases were not very fine, but that at No. 9, Henrietta-street was an exception. A view of a beautiful chimney-piece in one of the Henrietta-street houses was shown, although the lecturer said that nearly all the old chimney-pieces had gone to English dealers. In 1731 an order was given to the Surveyor-General to produce designs for a new Parliament House, and the surveyor, who was not an architect, got the help of some one and was astute enough to keep the name of the architect to himself, although some people thought it was Castle. Views were shown of the tapestries in the building now occupied by the Bank of Ireland One of the most successful in building up the fortunes of his family was Sir Marcus Beresford, who afterwards became the Marquis of Tyrone and built Tyrone House. The ceiling was Castle's design, but he thought he must have introduced craftsmen to carry out the conception. From 1841 on there was a wave of prosperity which went on increasing until almost the end of the century, but it was now the old landed gentry who were to be found carrying out the traditions of building. Leinster House was designed by Castle, and it was flattering to Dublin people to know that when an Irish architect was asked to make a design for the White House at Washington he was asked to take Leinster House as his model. A number of views of the interior of Leinster House were exhibited, including the hall, which Mr. Sibthorpe considered one of the most satisfactory things they had in Dublin, because it was so free from meretricious ornament. The foliated scrollwork in the ceiling influenced the plaster-work in the city for the next twenty years, and was to be found in most of the houses of the time. A photograph of the ceiling in the supper-room at Drogheda House was shown, which the lecturer thought reminded them of a ceiling in the Ducal Palace of Venice. In 1751 Sir Edward Berry, a distinguished Dublin doctor, purchased some land in the open country between Dublin and Donnybrook, and erected a villa for himself. He seemed to have been a man who appreciated art and to take enjoyment in things which were beautiful. Some lovely plaster-work remained in two of the rooms. On the ceiling of the morning-room there was a figure of Jupiter in the centre, and in the corners four female figures representing the four seasons. In the dining-room the ceiling represented the head of Apollo, with rays of light, and there were figures representing the arts and sciences. Another type of Dublin doctor was Dr. Richard Moss, who, in 1743, founded the first maternity hospital in the United Kingdom. Every penny of his own money and all that he could get from the citizens was devoted to the erection and beautification of the Rotunda Hospital. Moss wanted the chapel of the hospital to be a gem, and he employed the Franchini Brothers to decorate it in stucco. He also entered into communication with Cipriani to design a sketch of the "Nativity of our Lord" for the ceiling, and arranged to pay him forty guineas for the sketch. He paid twenty guineas, and the sketch was made and was in existence now. But Dr. Moss died a very poor man, at the early age of forty-seven, and, although his trustees offered the other twenty guineas, Cipriani refused to send the sketch. The lecturer next dealt with Trinity College, the front of which was designed by two Cambridge architects, and the Provost's House, designed by John Smyth. The architect was instructed to take as his model the house of General Wade in Burlington-street, London. The interior, however, was very different, and in it was one of the most stately rooms to be found in any Dublin mansion. The house was built in 1758. A photograph was shown of the little Greek Temple called the Belvedere, built by the Earl of Charlemont. It was a beautiful building, but the only reason why it was built was apparently as a kind of protest by the Earl against the house which his guardians had built for him during his minority. Lord Charlemont was not a great man, but he was a man of sincere patriotism, of good taste, and was best known in history as the commander of the Irish Volunteers. Charlemont House, built in 1774, was designed by Sir William Chambers, who built Somerset House. The next house dealt with was one in Dawson-street, built in 1760 by Mr. Knox, afterwards Lord Northland, which was now occupied by the Royal Irish Academy. The decoration in many ways was unique in Dublin plaster-work, and reminded the lecturer more of the old Roman plaster-work in the time of the Emperors. In a house in William-street, of which Richard Mack was architect, they could see in the decoration a considerable advance towards the Adam's style. Belvedere House was one of the best-known houses in Dublin. It was built in 1786, and the whole of the ornament was of the Adam's character, but it was crowded and fussy. At this time there was a curious recrudence of the speculative building they had in the early part of the century, and this time it was a sort of partnership between a banker and a doctor—Mr. Digsby Touche, who worked jointly with Dr. Hume. Views were shown of houses built by these gentlemen in Stephen's-green, in which Mr. Sibthorpe said they got to a true appreciation of the genuine Adam's feeling. Hume also built a number of houses in Ely-place, one of which was bought in 1782 by John Fitzgibbon. A photograph of the original chimney-piece was shown.

This concluded the series of lantern slides, and the address of Mr. Sibthorpe, which, apart from the decorative features of Dublin houses, dealt in a most interesting way with phases of Irish life, and abounded with delightful touches of humour.

A hearty vote of thanks was accorded to the lecturer.

PREMISES, WHITECHAPEL HIGH-STREET.

Business premises are in course of erection at 59-60, Whitechapel High-street, E. The architects are Messrs. Deakin & Cameron, Devonshire-square, E.C., and the general contractors are Messrs. Bovis, Ltd., Upper Berkeley-street, Portman-square, W.



Normanton Church: Interior, looking East.

Normanton Church: Interior, looking West.

(The monumental slabs were in the previous structure, and accommodation had to be found for them in the restored building.)

NORMANTON CHURCH.

THE Church of St. Matthew at Normanton, Rutland, stands on an elevated plateau, and is approached through the grounds of Normanton Hall. It has recently been rebuilt in memory of the first Earl of Ancaster, by Evelyn Countess Dowager of Ancaster. When the foundations were laid remains of thirteenth-century work were discovered, proving that a church stood there before the one built by Sir Gilbert Heathcote, third baronet, in 1764. The latter church had no architectural merit, and the small tower at the west end was demolished in 1820 by the fourth baronet and Lady Sophia Heathcote, who erected in its place the portico and cupola retained in connection with the new nave and chancel.

The architect was Mr. J. B. Gridley, of Gray's Inn-square, London, and the builder Mr. S. F. Halliday, of Stamford.

DRAWINGS OF ITALY.

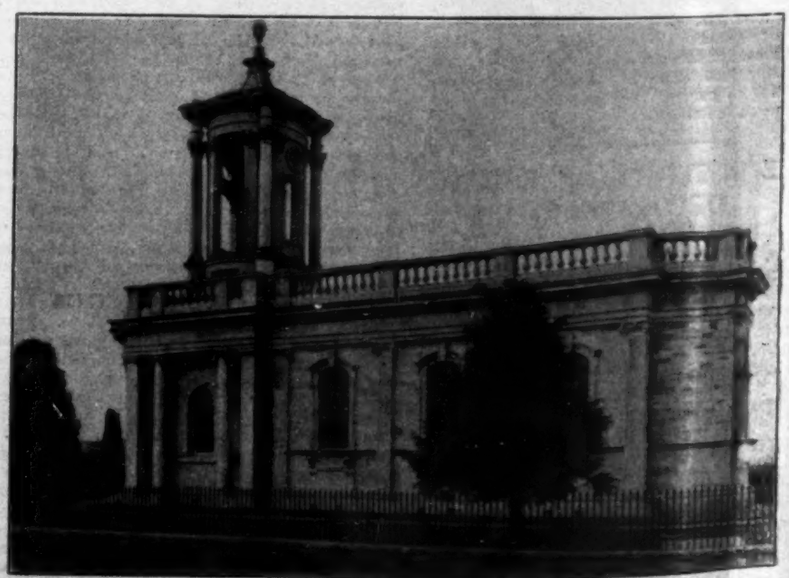
UNDER the above title, at Messrs. Colnaghi & Obach's Gallery, Mr. Muirhead Bone is exhibiting a collection of drawings which should be of considerable interest to architects, as well as to the wider circle of those who admire fine craftsmanship for its own sake. But there is more in these drawings of Italian buildings than mere skill, though that quality is present in as high degree as we have learnt to expect from this master of the pencil. Mr. Bone seems to have an instinctive knowledge of the real essentials of architecture. Even in his slightest sketches he manages to express more than the mere outward appearance of the thing drawn. He emphasises qualities of mass, line, and proportion, and so conveys to the lay mind the real reasons why architecture is a fine art. And in his most elaborate drawings, where the delicacy of detail is comparable with the frozen accuracy of commercial photography, the same subtle emphasis of the really important things is still present. In fact, these drawings are a standing refutation of the theory that photography can ever really take the place of draughtsmanship. There is so much more in them than the most accurate focusing with the most expensive and up-to-date lens can succeed in getting on to the plate. Not more detail perhaps, but certainly more "significant form," to borrow a phrase from the Post-Impressionists.

Such drawings as No. 24, "The Back of the Duomo, Orvieto," or No. 37, "The Theatre of Marcellus, Rome," are about as good examples of what architectural drawings should be as we can expect to find in this imperfect world; truthful statements of fact and interesting in design. But No. 8, "The Piazza, Orvieto," gives us more than these things. It is, in addition, a study of the weather, and expresses the effect of a wet day with amazing vividness, and all done in the simplest way with a pencil and white paper.

One of the most interesting points about this exhibition is its great variety, ranging from the meticulous veracity of the "Castle of St. Angelo" (No. 5) to the mysterious and dramatic "Entrance to the Vatican: Night" (No. 41), where a smudge of grey, a couple of hastily-drawn pillars, and an empty cab manage to give the spectator almost a feeling of tragedy; certainly a strong premonition that something is going to happen.

Then, again, there is a drawing of a crowd (No. 54)—a real crowd, composed of real people with varied characteristics, and yet not one of them can really be said to be drawn at all in the strict sense of the term. The thing is analogous to the Cheshire cat's grin, and just as inexplicable.

The last drawing in the catalogue, "Piazza Venezia, Rome," is one of the most charming



Normanton Church, recently restored in the Classical Style.

Mr. J. B. Gridley, Architect.

in the room. It is in pencil, lightly tinted with water-colour, and both for once in a way are in perfect harmony. There are also some pastel drawings, but they are not quite so interesting. Mr. Bone does not seem to us to feel quite so certain of himself when working in colour, and he undoubtedly sacrifices some qualities which are not compensated for by colour, which, though good enough in its way, is not very distinguished. But no doubt if somebody else had done them we should like them well enough.

GENERAL NEWS.

New Keeper of Irish Antiquities.

Mr. C. C. R. Armstrong, assistant in the Irish Antiquities division of the Irish National Museum, has been appointed keeper of that division in succession to Mr. George Coffey.

The University of London.

The annual Report on the work of the University of London, University College, has just been issued. The total number of students during the session 1912-13 was 2,083. These were distributed as follows:—Faculty of Arts, 219 men, 205 women; Department of Fine Arts, eighty-three men, 190 women; Faculty of Science, 147 men, thirty-five women; Faculty of Medical Sciences, 137 men; Faculty of Engineering, 128 men; Faculty of Laws, thirty-four men; Post-graduate and Research, 294 men, 117 women. Evening students:—Faculty of Arts, 159 men, 294 women; Faculty of Science, nine men, thirty-two women. In addition to these numbers there were 196 students of other colleges attending the various inter-collegiate courses. The special courses for teachers were attended by about 495 teachers; and the public lectures, which are open to the public without payment or ticket, were attended by upwards of 3,000 persons. The number of graduates was 144, of whom 113 took honours, and ten gained University scholarships. The Report contains a general summary of the activities of the college. The most important event of the past year is perhaps the combination of the two Schools of Architecture previously separately conducted at University and King's Colleges under the name of the University of London School of Architecture, and the completion of the new building therefor. This building provides accommodation for upwards of one hundred students. The University College Committee will be assisted in the management and development of the new School by an Architectural Education Committee. The following is the constitution of the first Architectural Education Committee:—The Chancellor, the Right Hon. the Earl of Rosebery, K.G., K.T., D.C.L., LL.D., F.R.S.; the Vice-Chancellor, Mr. W. P. Herringham, M.D. (Chairman); the Chairman of Convocation, Sir Edward H. Busk, M.A., LL.B.; the Principal of the University, Sir Henry A. Miers, M.A., D.Sc., F.R.S.; Sir Herbert H. Bartlett, Bart.; Professor S. D. Adshead, F.R.I.B.A.; Mr. Reginald Blomfield, President R.I.B.A., A.R.A., M.A.; Mr. J. J. Burnet, A.R.S.A., LL.D., F.R.I.B.A.; Professor W. E. Dalby, M.A., B.Sc., M.Inst.C.E., M.Inst.M.E., A.M.Inst.M.E., A.M.Inst.N.A., F.R.S.; Mr. Ernest Newton, A.R.A., Vice-President R.I.B.A.; Hon. R. C. Parsons, M.A., M.Inst.C.E., M.Inst.M.E., A.Inst.E.E.; the Principal of King's College, Mr. Ronald M. Burrows, D.Litt.; the Provost of University College, Mr. T. Gregory Foster, B.A., Ph.D.; Professor A. Schuster, Ph.D., LL.D., D.Sc., Sc.D., F.R.S.; Professor F. M. Simpson, F.R.I.B.A.; Mr. John Slater, B.A., F.R.I.B.A.; Professor R. Elsey Smith, F.R.I.B.A.; Mr. Andrew T. Taylor, F.R.I.B.A., R.C.A., L.C.C.; and Mr. Edward Warren, F.S.A., F.R.I.B.A.

Letting of Building Sites, London.

On March 19 the Corporation of the City of London approved the letting of the important site, at the foot, north, of London Bridge, of Nos. 1–5, Adelaide-place and Adelaide-buildings, together with London Bridge Wharf, Lower Thames-street, having frontages on the two levels to the river, to Mr. L. A. Solomon, of No. 41, Cheapside, for a term of ninety-nine years from last Lady Day at a rent of £7,000, the previous rent having been £5,000. The ground area of the property extends over 24,300 ft. super., and it appertains to the Bridge House Estates of the Corporation. The lessee is required to expend not less than £80,000 upon new buildings. The present premises were recently vacated by the Pearl Life Assurance Company, Ltd., upon their removal to new quarters in High Holborn.—Messrs. Daniel Watney & Sons have just let at auction the Guest Estate, Finsbury-circus, at £5,000 per annum; the building lease for eighty years extends to the block Nos. 2–6, Finsbury-circus, and Nos. 34–6–8, Finsbury-pavement, and premises in South-place, covering an aggregate area of 21,000 ft. super. It is stipulated that new buildings shall be erected before Michaelmas, 1916, and that not less than £75,000 shall be spent upon them. Several large blocks of buildings have been lately erected in this locality, and Finsbury-circus and Finsbury-square are to be transformed.

Devizes Castle.

Consequently upon the decease of the late Sir Charles H. S. Rich, F.S.A., Devizes Castle will be shortly placed in the market for sale. A former owner, the late Mr. R. Valentine Leach, and his father, spent large sums upon the existing modern residence, and in August, 1888, the property was sold for £8,000. Further repairs and enlargements were carried out under the direction of Mr. C. W. Dempsey—the work extending over a period of three years. Devizes Castle, founded and built by Roger the Norman (*temp.* Henry I.), is reputed to have had no equal in the kingdom for its strength, extent, and magnificence. William de Ypres defeated Roger's nephew, Nigel, Bishop of Ely, and captured the Castle, with its treasure of 40,000 marks, in 1139; it capitulated to the Empress Matilda, who escaped thither from Winchester. Leland visited Devizes in the autumn of 1539. He writes in his "Itinerary":—"Such a piece of castle work was never before nor since set up by any Bishop of England. The keep or donjon of it, set upon a hill cast by hand, is a piece of work of incredible cost. There appear in the gates of it six or seven places for portcullises, and much goodly building was in it. It is now a ruin, and part of the front of the towers of the gate of the keep and of the chapel in it were carried full unprofitably [*temp.* Edward III.] to the building of Master Baynton's house at Bromham, scant three miles off." On September 22, 1643, Sir William Waller routed Lord Wilmot's cavalry on Roundaway Hill, and two years afterwards Sir Charles Lloyd, Governor of the Castle, surrendered it to Fairfax. The Parliament ordered it to be dismantled and its fortifications to be razed to the ground.

Cloth Fair, West Smithfield.

The Corporation of the City of London have formulated a scheme for dealing with the eastern half of this quaint and, for London, unique quarter as an "insanitary area," under Part II. of the Housing of the Working Classes Act, 1890. The project, if persisted in, will involve the demolition of many gabled and bow-windowed houses of the sixteenth to seventeenth century period, the like of which will not be found elsewhere in London. The reports of the Sanitary and the Improvements and Finance Committees of the Court of Common Council relate chiefly to Nos. 12 to 16, 17 to 26 (sites), and Nos. 27 to 33, 35 to 37, in Cloth Fair, and No. 1, Red Lion-passage. Of these No. 22, under the shadow of the Lady Chapel of St. Bartholomew-the-Great, and No. 24 are of particular interest. The former was built in the beginning of the seventeenth century by the Earl of Warwick, who named it Warwick House, and distinguished it with his coat-of-arms, which it still bears. No. 24, until lately the "Dick Whittington" Tavern, also known as the "Stingo," boasted to possess the oldest continuous licence in the City, and to be upwards of 500 years old. An even earlier origin as a tavern is claimed by the "Hand and Shears," directly opposite to it in Middle-street, whereof the premises have been modernised. An etched drawing of the "Dick Whittington," the "Stingo" of our sketch of January 14, 1882, forms the headpiece of Mr. W. Monk's "Calendarium Londinense" for 1912. The cost of the scheme, in so far as it affects Cloth Fair, is about £40,000. A total (gross) expenditure of more than £200,000 is contemplated by the Corporation for an extension of the London Central Markets and their approaches, with the widening of Long-lane to 60 ft.

Golf Course, St. George's-hill, Weybridge.

At a cost exceeding £20,000, with £15,600 for the club-house on the hillside, St. George's-hill has been laid out for golf links under the directions and superintendence of Mr. H. S. Colt and Mr. W. G. Tarrant, of Byfleet. Until less than two years ago a dense forest of oak, silver birch, and Scotch fir, in a soil of peat, with heather, covered the 160 acres of the hill. As many as 10,000 trees, mostly fine Scotch firs, were cut down and their roots were blown up with dynamite; hundreds of tons of the peat-soil were dug up; the ground was then treated with lime and wood ash, over 200 tons of lime being used; it was then rolled and harrowed, 4,000 tons of stable manure were spread, and £600 worth of grass-seed was sown. The club-house stands upon a levelled portion of the slope of the hill known as Horseshoe Clump, and has a prospect over the country stretching towards Windsor.

Portsmouth "Six Churches."

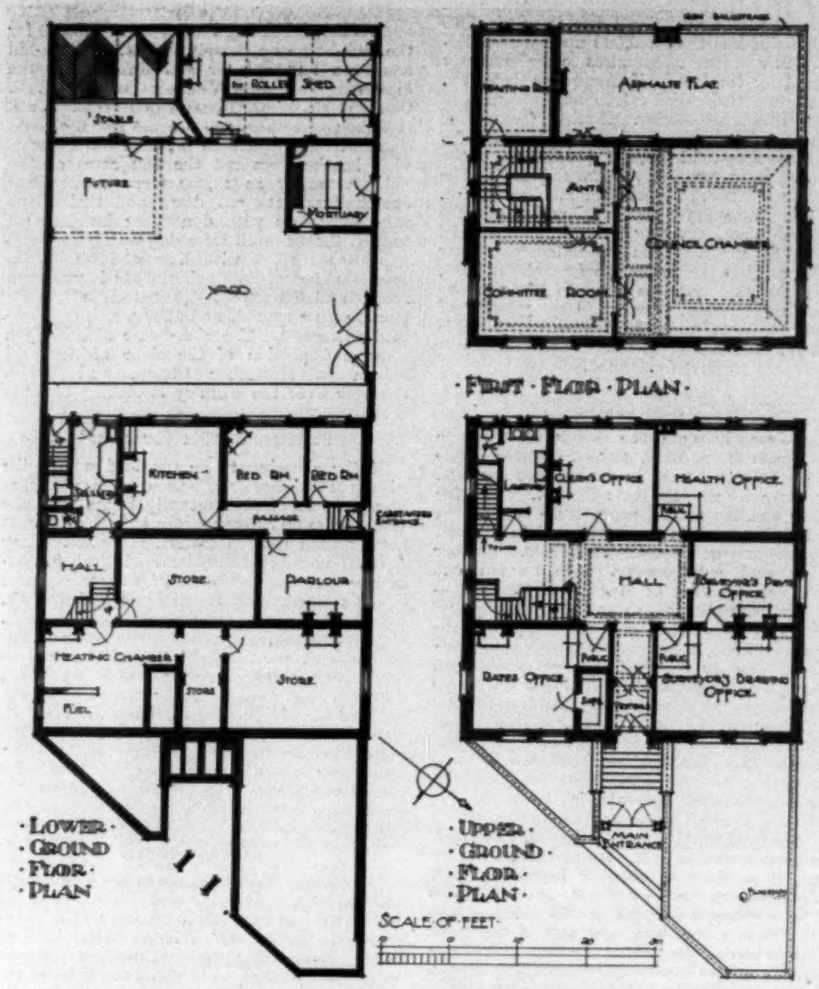
Of the churches to be provided out of the Bishop of Winchester's Portsmouth Six Churches Fund two have been recently begun, and the stones were laid four months ago, the contract having been secured by Mr. S. Salter. They are the churches of the Ascension in Stubbington-avenue and St. Saviour's in Twyford-avenue, both in North End, in the large parish of St. Mark's, and both designed by Mr. A. E. Cogswell, of Portsmouth, architect. The former, for 750 sittings, has a nave 85 ft. by 52 ft., chancel 30 ft. long, and a side chapel 48 ft. by 16 ft., and will cost about £7,000; the latter has a nave 24 ft. wide, and a total length of 115 ft. The Church of St. Albans, Copnor, the second erected out of the Fund, was consecrated last February; it is a plain building of brick, with pillars and arches of red Hollington stone and a western rose window, and contains 700 sittings.

Southwark Bridge.

It is hoped that work upon the new bridge will be begun shortly, and that it will be completed within three years; the contractors, Messrs. Sir William Arrol & Co., have provided for the meanwhile temporary footways 8 ft. 6 in. wide along the sides of the old structure, carried upon independent foundations (as the old piers will be removed) of timber piling, which will also support the cranes, staging, and cross-girders for the new works. Messrs. Basil Mott & Hay's designs are for a steel bridge of five spans, with a middle span of 140 ft. 6 in., two intermediate spans of 131 ft., and shore-spans of 123 ft., the total length being 703 ft. and the width 55 ft., as compared with the 42 ft. 6 in. width of the old bridge; the piers will be of British granite. The gradients on the approaches and the bridge will nowhere exceed 1 in 32; the middle span of Rennie's structure has a rise of 24 ft., and the northern and southern approaches have gradient rates of 1 in 18 and 1 in 28 respectively. The cost is estimated at £280,000. The architectural treatment of the bridge is committed to Sir Ernest George, A.R.A., whose design, as a water-colour drawing, was exhibited in the Royal Academy rooms last summer, and was illustrated in our columns of June 6, 1913.

Technical Education at the Garden Suburbs.

The development of building estates by societies federated with the central body of Co-partnership Tenants enables technical education to be encouraged along systematic lines. Every winter the Co-partnership Tenants Housing Council pays the fees of workmen engaged in erecting houses on its garden suburbs who attend classes at public institutions. Mess-room classes are also organised in practical plumbing. On the Hampstead Garden Suburb a step further has just been taken, and Mr. Len. Godfrey has been appointed instructor of workmen's classes held on the jobs where the men are actually at work. A specimen lesson has just been given to about fifty of the workmen who assembled under the chairmanship of Mr. G. L. Sutcliffe, F.R.I.B.A., to learn the value of the steel square in connection with roofing and to see demonstrations of geometrical problems by means of specially-prepared models. At the conclusion of the lesson Mr. Henry Vivian, the Chairman of the Hampstead Tenants societies, pointed out how scientific precision would have to take the place of the old rule-of-thumb method of building.



Council Offices, Newburn-on-Tyne.

Mr. Edward Cratney, Licentiate R.I.B.A., Architect.

ILLUSTRATIONS.

Newburn Council Offices.

THIS work was won in open competition and has been carried out by Mr. Edward Cratney, M.S.A., Station-road, Wallsend-on-Tyne. The general contractor was Mr. Thos. Clements, Newcastle-on-Tyne; the heating, wrought-iron work, and electric light fittings were carried out by Messrs. Emley & Sons, Ltd., Newcastle-on-Tyne; the carving was executed by Mr. G. Hughes, of Newcastle-on-Tyne; the oak panelling, Council-chamber seating and furnishings were executed by Messrs. Robson & Sons, Newcastle-on-Tyne; lead rain-water heads by Messrs. Allinson & Sons, plumbers, Gateshead-on-Tyne; electric installation by Messrs. Robson & Coleman, Newcastle-on-Tyne; sandstock bricks by Messrs. Wray & Sons, York. The ornamental plaster to the hall staircase and Council-chamber was carried out to the architect's design by Messrs. John Ferguson & Co., Newcastle-on-Tyne.

Pollards' Wood Grange, Chalfont St. Giles.

THE house was built in 1907 chiefly for the purpose of a summer-house, and stands in a wood of silver birches. The kitchen yard is screened from the garden by a rough chalk wall. The roof tiles are old ones. The roughcast is silver-grey, and the louvred shutters and external woodwork painted blue-grey.

The Lodge is thatched in reed thatching, thatchers being brought from Norfolk for the purpose. The external walls are in grooved fletton bricks, lime-washed, with a band of split flints under the eaves. FORBES & TATE.

The National Provincial Bank of England, Wolverhampton.

THIS drawing is a reproduction of the architects' working detail of a portion of the elevations of the building, which is in course of erection at the corner of Exchange-street and Queen's-square.

The fronts will be carried out in Portland stone, with a base of light grey and a plinth of dark grey granite. The sculpture over the main entrance doorway is symbolical of Industry and Commerce; this, and the carving generally, will be executed by Messrs. G. Seale & Son.

The banking office is to have a mahogany dado, and the walls over will be lined with Arni-Alto marble panelled with Swedish green rails.

The upper portion will be devoted to suites of offices for letting purposes, with an entrance from Queen's-square, and serving these floors will be an Otis electric passenger lift.

Provision is also made for caretaker's apartments.

The general contractors for the work are Messrs. Henry Lovatt, Ltd., Wolverhampton, and the architects are Messrs. Bromley & Watkins, Nottingham.

All Hallows, East India Docks.

THE chapel illustrated has been formed in the gallery at end of south side. The form of the reredos was largely determined by some odd pieces of panelling and carving from an old City church which it was desired to work in.

The centre panel, adoring angels, has been modelled by Miss Dorothy Rope. Messrs. Ashby Bros. were the builders, and Mr. J. Harold Gibbons, of Messrs. J. Gibbons & Son, architect.

Bungalow, Ightham, Kent.

THE bungalow was built for Mrs. Douglas Bary in the grounds of "The Grange," Ightham, Kent, on a steep slope with south-west aspect. The house was planned to contain most of the conveniences of a larger house on a small scale, the accommodation including:—Entrance hall with coat cupboard, sitting-room and veranda, two bedrooms, bathroom and water-closet with cut-off lobby, hot linen closet, mistress's store cupboard, combined kitchen and scullery with two cupboards and dresser, maids' bedroom, larder, and storage space in the roof, maids' water-closet. The coal store was built into bank on the south-east side.

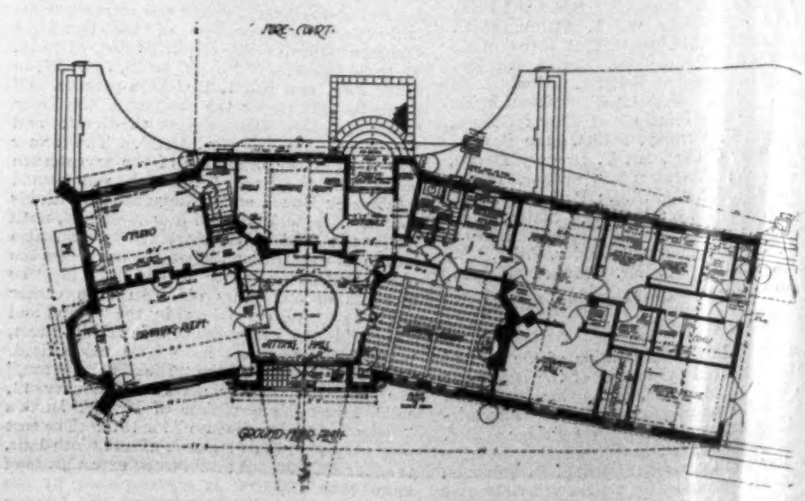
The materials for walls are brick rough-cast, and some internal walls of Muribloc partitions. The contractors were Messrs. Curtis & Caine, of Borough Green. Mr. W. Kingsley McDermott, A.R.I.B.A., of Borough Green, was the architect. The drawing was hung in the 1913 Royal Academy Exhibition.

ARCHITECTURAL SOCIETIES.

Liverpool Architectural Society: "Concrete and Reinforced Concrete Don'ts for Architects."

ON the 23rd ult. Mr. John A. Davenport, M.Sc., A.M.Inst.C.E., read a paper before the Liverpool Architectural Society on "Concrete and Reinforced Concrete Don'ts for Architects." He said:—

"Concrete may be defined as an artificial stone made by mixing together broken stone, sand, cement, and water, the resulting semi-fluid mass being poured into moulds and allowed to set hard. This definition allows a comparison to be made between solid stone and stone built up either as masonry or as concrete. Comparing a cube of solid stone with cubes built up of regular and irregular pieces it can be shown that the strength of the latter will equal that of the former, provided the voids are filled with material as strong or stronger than the stone and any spreading is prevented. A suitable filling is provided by Portland cement mortar, and the spreading may be prevented by an internal force provided by cement, an external force provided by a band or hoop, or a combination of internal and external forces provided by cement and hoop. The first method results in plain concrete, the



Pollards' Wood Grange, Chalfont St. Giles, Bucks.

Messrs. Forbes & Tate, Architects.

second method is inapplicable to concrete, while the third method results in hooped concrete, which naturally is stronger than plain concrete.

The filling of the voids is best done by using stone shaped to fit the corresponding spaces; but as this is impracticable a number of different-sized stones must be used to fill the spaces for which they are suitable, thus cutting down the resulting volume of voids to a minimum. The voids to be filled with sand should be dealt with in the same way, and thus it follows that good concrete can only be made with graded sand and coarse material, and these should be very carefully proportioned.

Concrete must not only be strong; it must possess certain water-resisting, fire-resisting, and other properties in addition, and this leads up to the choice of suitable coarse material. Provided care is exercised in the choice of materials concrete can be made as waterproof, as it is possible to make it under any circumstances, without the use of patent compounds.

Having chosen the best possible materials, and having graded and proportioned them accurately, they required to be carefully mixed till the whole mass became uniform; and this could best be done by machine mixing. The failure of concrete is often due to bad mixing, and not to materials or proportioning. After mixing the concrete should be carefully laid, well tamped, and, while setting and hardening, kept free from vibration.

Centering.

Centering should receive as much thought and care in its design as does reinforced concrete, as it must be strong enough to carry dead weight and resist semi-fluid pressure; it should be capable of being easily and quickly removed without damage to the work; and it should be capable of being removed in a particular order with a view to accelerating the hardening of the concrete without adversely affecting its strength. The time of laying concrete should be carefully noted in a log-book, so that there should be no ambiguity about the time of striking.

For moulded work a cheap and good job can be obtained by using plaster of Paris moulds, struck out with templates and supported on wood backing or framing.

Steel.

High carbon and mild steel are both used, the former as a mechanical bond bar; but it has not been proved conclusively that existing mechanical bond bars are superior to plain bars.

When porous concrete is used great care must be taken to coat the bars with a cement wash to prevent corrosion, and in all cases bars must not be allowed to be displaced by careless workmen after once being fixed. In the event of alterations regarding the steel in any job, these should only be carried out to expert advice.

Fireproofing.

The practice of fireproofing is founded on three fundamental facts, viz.:—

1. A fire may originate outside a building.

Hall Fireplace, "The Tree," Plaxtole, Kent.

Mr. W. K. McDermott, A.R.I.B.A., Architect. (*See page* 440.)

2. A fire may originate inside a building.

3. The resistance of any building to fire is the resistance of its least resistant part.

The fighting of fires is the work of the municipal authorities, but appliances should always be available to deal with an outbreak on the spot.

Fireproof walls, roofs, and partitions should be used to prevent spreading, but these would be of little use if the coverings to windows, door, and other openings were not as strongly resisting as the rest. After localising the fire attention must be paid to the protection of all structural members, whether built of steel, wood, or stone; and the best material to use is concrete. But the protective coat must be of uniform thickness for best results, and this prohibits the bedding of pipes, ducts, etc., therein. The object of the coat is the protection of the steel, and therefore there must be no passage for the heat to flow from the outside to the inside by way of wood plugs, metal projections, and so on.

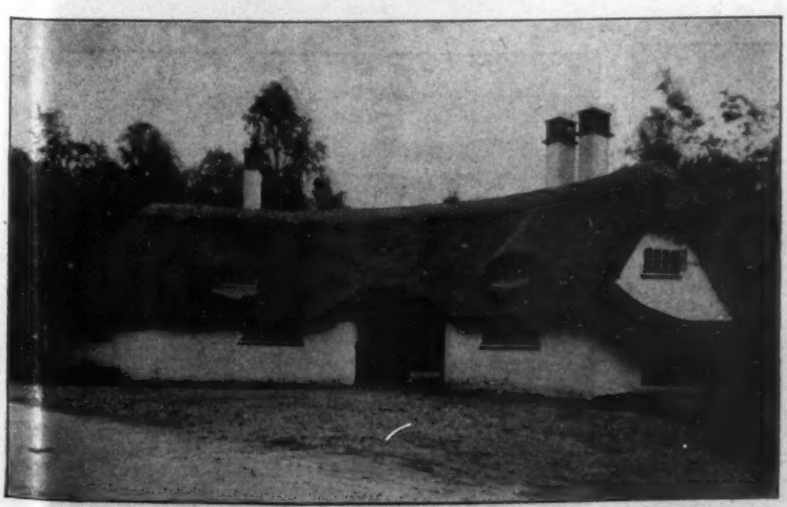
Economical Design.

Economy depends upon cost of materials and cost of labour, which will vary from time to time; but these may be taken at present-day values for comparisons. Neglecting all question of architectural economy, the cost of the engineering structure is affected chiefly by the lay-out or arrangement; next by the relative amounts of concrete, steel, and timber, and also by the shapes of the sections used. The most economical job is given by the use of thin slabs supported by beams of short span, the whole being reinforced with steel of percentage slightly higher than the theoretically economical percentage. Uniformity of sizes makes for economy, as with dissimilar sizes much time is taken in learning to put in the steel and concrete expeditiously. Other things of importance to economical design are the choice of suitable and cheap aggregates and the adoption of steel sizes which can be purchased cheaply and be worked and handled easily."

A list of concrete and reinforced concrete don'ts bearing on the points raised in the paper was given, and views of reinforced concrete failures, the pulling down of a reinforced concrete building, and the erection of reinforced concrete buildings were shown and described.

During the discussion which followed, among other points raised, the lecturer was asked whether waterproofing compounds were necessary and good, to which he replied that concrete could be made waterproof without the aid of foreign matter of any kind, but it required careful making, on the lines suggested in the paper. The fact that good materials do not always produce good concrete does not prove that it cannot be made waterproof, but only that the method of manufacture is not right. Many waterproofing compounds contain materials which adversely affect the good properties and should, generally speaking, be avoided.

Another point of interest was raised by the Deputy City Building Surveyor, who checked the design for the Royal Liver Building. He said that he was not satisfied as a result of his calculations, based on the R.I.B.A. Report, and a test floor was made and tested giving a factor of safety of 10. This bore out the lecturer's remarks on failures, in which occurred the sentence: "The failures from bad design are few in number, due no doubt to the fact that official rules and regulations at present in force are exceedingly stringent."



Gate Lodge, Pollards' Wood.

Messrs. Forbes & Tate, Architects. (*See page* 440.

Edinburgh Architectural Association.

Applications have been received from various parts of Scotland in connection with the two Travelling Studentships of £40 offered by this Association, and these have been considered by the Committee in charge, who have awarded the prizes to Mr. James M. Brown, at present assistant with Messrs. Alexander Cullen, Lochhead, & Brown, Hamilton, and Mr. William Paterson, A.R.I.B.A., of Edinburgh.

[**** A short report of a meeting of the Architectural Association of Ireland is held over until next week.—ED.]

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MEETINGS.

THURSDAY, APRIL 16.

Society of Architects.—Mr. W. Valentine Ball, Barrister-at-Law, on "The Arbitration Clause." 8 p.m.

Carpenters' Hall, London-wall.—Mr. C. Delisle Burns on "The Use of Church Buildings in the Middle Ages." 8 p.m.

CORRESPONDENCE.

H.M. Office of Works' Clerks of Works.

SIR,—The general public have an idea that all Crown servants receive a pension at the termination of a number of years of satisfactory service should they have to retire through illness or old age.

This is not so. The unestablished clerks of works employed by H.M. Office of Works are, at the termination of their service, treated far worse by the State than are the employees of many commerical houses, all of whom are temporary.

To call and treat as temporary employees men who have been engaged ten to thirty years is not right, and to scrap them and wash one's hands of men who have held responsible posts and discharged their duties faithfully for many years, and only give them a paltry compassionate grant of one week's salary for each year's service, is contemptible. The State should be the model employer, and all temporary servants should, after a number of years' satisfactory service, automatically qualify for a pension and their past service count.

Another grievance is the manner in which the salaries oscilate. A man may be in receipt of £5 to £6 per week one year and the next be reduced to £3 10s., on the plea that he is engaged on a small contract.

Business firms, as a rule, gradually increase the wage of deserving employees, and do not reduce them in this manner. The State, too, should not take advantage of a man's necessity, but should steadily increase the salary of efficient and deserving employees until a satisfactory maximum is reached, and this should not be liable to reduction; neither should any pretext be made to avoid employing an officer who, by length of faithful service, expects a substantial salary.

A TEMPORARY CLERK OF WORKS.

[*** Our correspondent's statements would lead us to believe that the lot of a clerk of works under H.M. Office of Works is not an enviable one. He must not forget that the terms and conditions of Government service are known beforehand. If, therefore, a man deliberately takes service under such conditions he is, in our view, somewhat illogical in complaining about them afterwards. The position is that he can take it or leave it at the outset, and if the conditions are unreasonable a clerk of works should boycott Government service till the conditions are amended.—ED.]

Patents and Designs Act.

SIR,—As you are aware, the amendment of the Patent and Designs Act is now under consideration in Parliament.

We have already received a number of valuable suggestions from our Fellows on the subject, but as the Institute of Inventors represents inventors generally we shall be obliged if you will afford us the opportunity of appealing to all those interested who have not yet communicated their views to us.

WALTER F. REID
(Chairman of the Institute of Inventors).

COMPETITION NEWS.

It must be understood that the following paragraphs are printed as news, and not as advertisements; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

The list of current Competitions is printed on page 454.

New Board of Trade Offices.

In reference to the new Board of Trade offices that are to be built, fronting the Embankment, at the back of the banqueting-hall in Whitehall, it has been previously announced that 187 sets of designs for the building were submitted, and from these the assessors—Sir Aston Webb, Mr. Reginald Blomfield, and Mr. Ernest Newton—have selected ten. The authors of the selected designs, to each of whom £300 is allotted, were informed some weeks ago of their success, but they received no further information, and, contrary to the usual practice, their names have not been published, although they have been in our possession. An unofficial list has, however, now been published as follows:—Messrs. Ashley & Newman, Adams & Holden, Robert Atkinson, Edwin Cooper, Vincent Harris, A. Horsnell, C. T. Armstrong, A. H. Brownrigg, Frank Simon, and Buckland & Farmer. We are informed independently that Messrs. Thomas & Jones, Cardiff, and Prestwich, Leigh, are in the selected list.

The Mill Hill School.

Members and Licentiates of the Royal Institute of British Architects are warned that they must not take part in this competition, because the conditions are not in accordance with the published regulations of the Royal Institute for architectural competitions.

Marple Sanatorium.

The Health Committee of the Salford Town Council report having given instructions for a fourth premium of 50 guineas to be awarded in connection with the competitive design for the proposed sanatorium at Marple; also that they had appointed Mr. Arthur Walton to act as quantity surveyor and to assist the assessor with the designs.

New Public Buildings, Dudley.

At a recent joint meeting of the Public Works and General Purposes and Watch Committees of the Dudley Town Council, the Clerk having reported the result of the visit of a deputation to the Home Office as to the requirements for the provision of new police buildings, he was instructed to ask Messrs. Nicol & Nicol, of Birmingham, to advise the Committees as to available site being sufficient for the erection of such new buildings as were required by the Home Office. The Public Works and General Purposes Committee, who, having fully considered Mr. Nicol's suggestions for a comprehensive scheme for New Town Hall, municipal buildings, and police buildings, decided (*a*) that the whole scheme be proceeded with at once; (*b*) that four selected architects of eminence in the profession be invited to send in designs, and that the three unsuccessful ones be paid a fee of 40 guineas each for expenses; (*c*) that the Town Clerk and Mr. Nicol be instructed to draw up the formal conditions of competition; (*d*) that the President of the Royal Institute of Architects be asked to nominate an assessor for a limited competition; and (*e*) that the following firms be suggested to compete:—Messrs. Crouch, Butler, & Savage, Birmingham; Messrs. Cousins, Peacock, & Bewlay, Birmingham; Messrs. Ewen Harper & Brother, Birmingham; and Messrs. Nicol & Nicol, Birmingham.

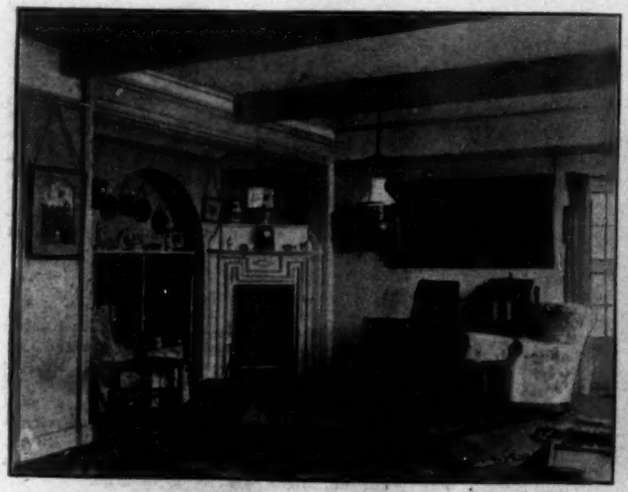
FIFTY YEARS AGO.

From the *Builder* of April 9, 1864.

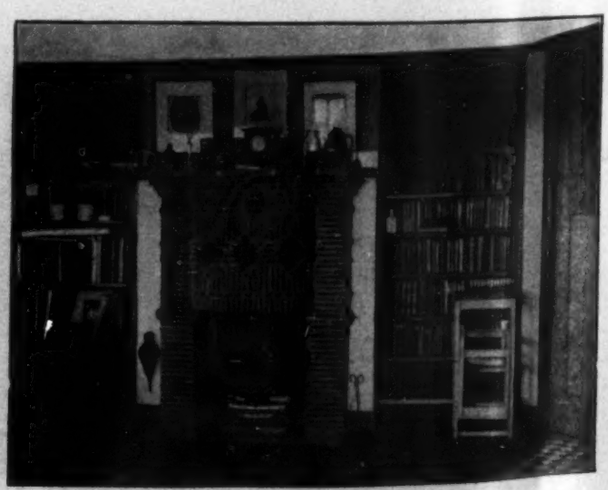
Inns of Court Hotel, London.

THE works connected with the erection of this building have been this week commenced. The site extends from Holborn to Lincoln's Inn-fields. The hotel will have a principal entrance on each front, and will be in two large blocks, connected together across Whetstone-park by covered corridors.

[*** We wonder whether the recent hotels will be considered as out of date in fifty years' time.—ED.]

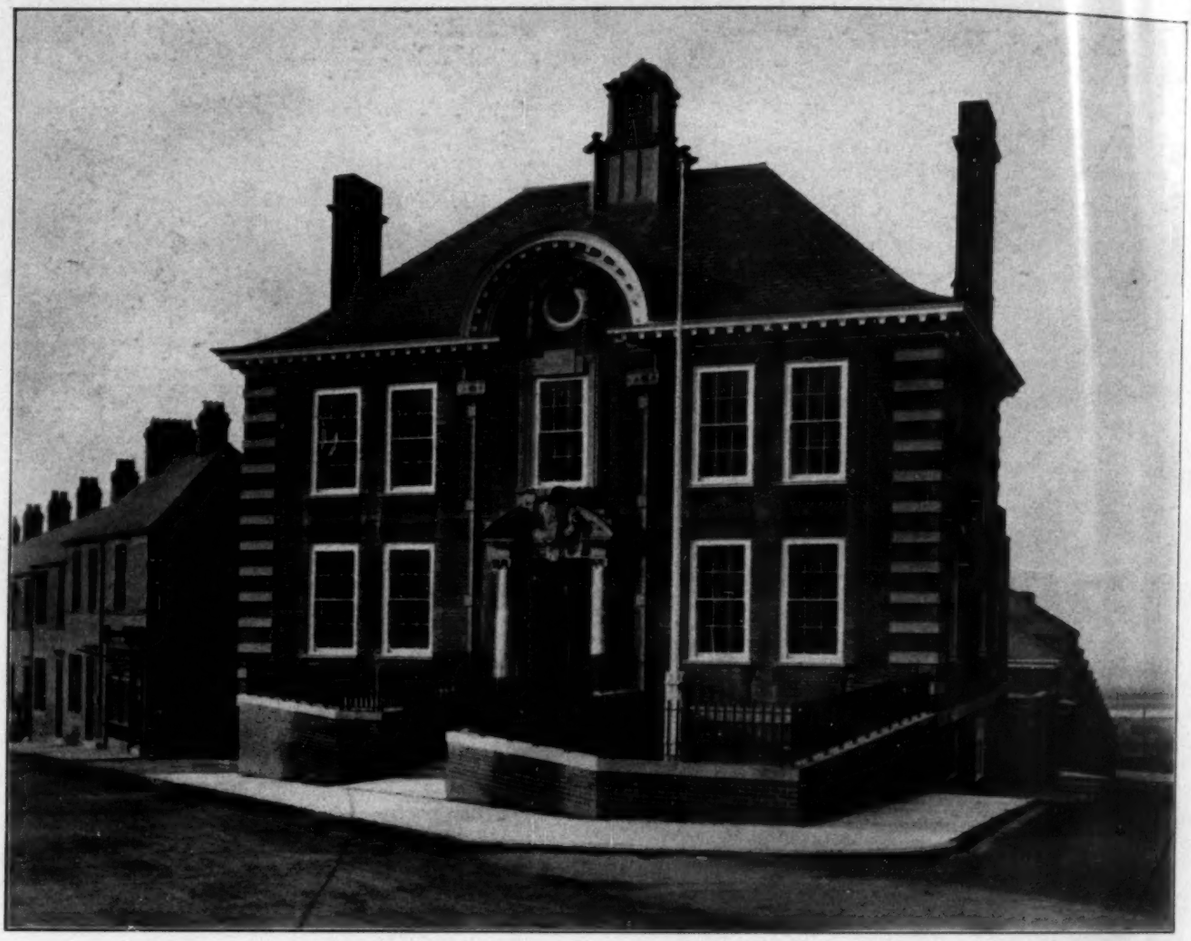


Drawing-Room Fireplace, "Green Leach," Wrotham, Kent.



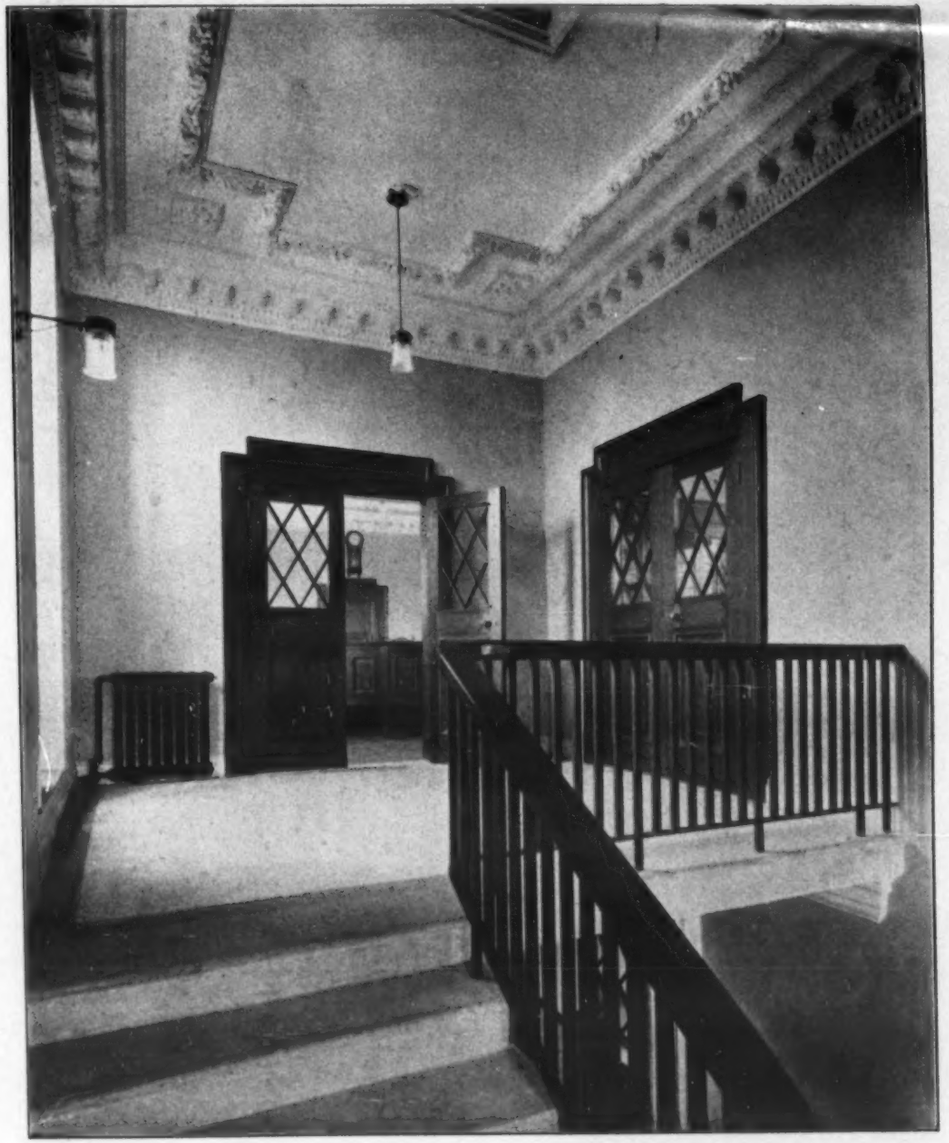
Study Fireplace, "Green Leach," Wrotham, Kent.

Mr. W. K. McDermott, A.R.I.B.A., Architect. (*See page 440.*)



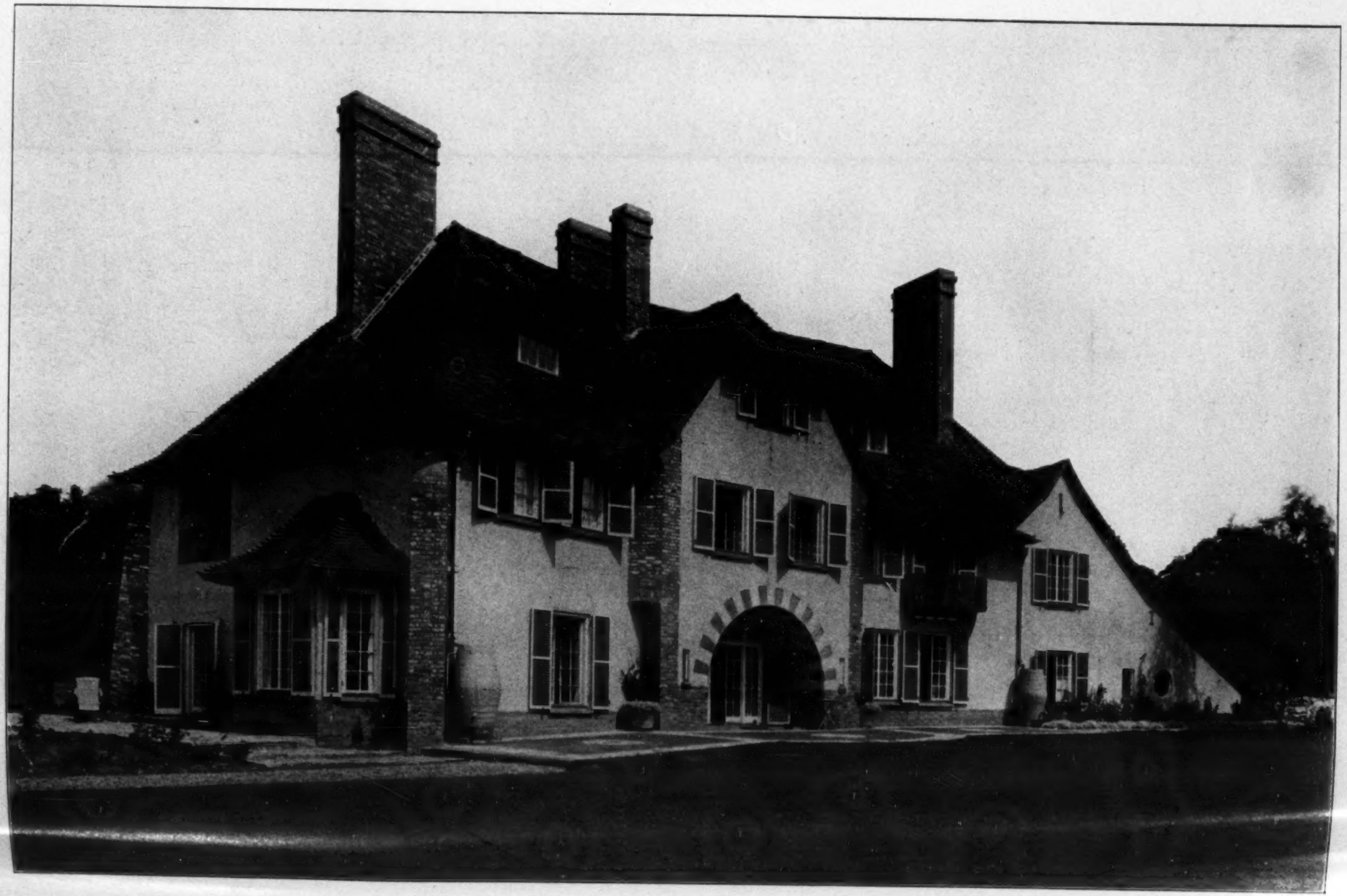
Martin, Hood & Larkin, 61, Newport St., London, W.C.

COUNCIL OFFICES, NEWBURN-ON-TYNE.—Mr. Edward Cratney, Lic.R.I.B.A., Architect.



Martin, Hood & Larkin, Gt. Newport St., London, W.C.

COUNCIL OFFICES, NEWBURN-ON-TYNE.—Mr. EDWARD CRATNEY, LIC.R.I.B.A., ARCHITECT.



POLLARDS' WOOD GRANGE, CHALFONT ST. GILES, BUCKS: ENTRANCE FRONT.—Messrs. Forbes & Tate, Architects.

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POLLARDS' WOOD GRANGE, CHALFONT ST. GILES, BUCKS: ENTRANCE FRONT.—Messrs. Forbes & Tate, Architects.

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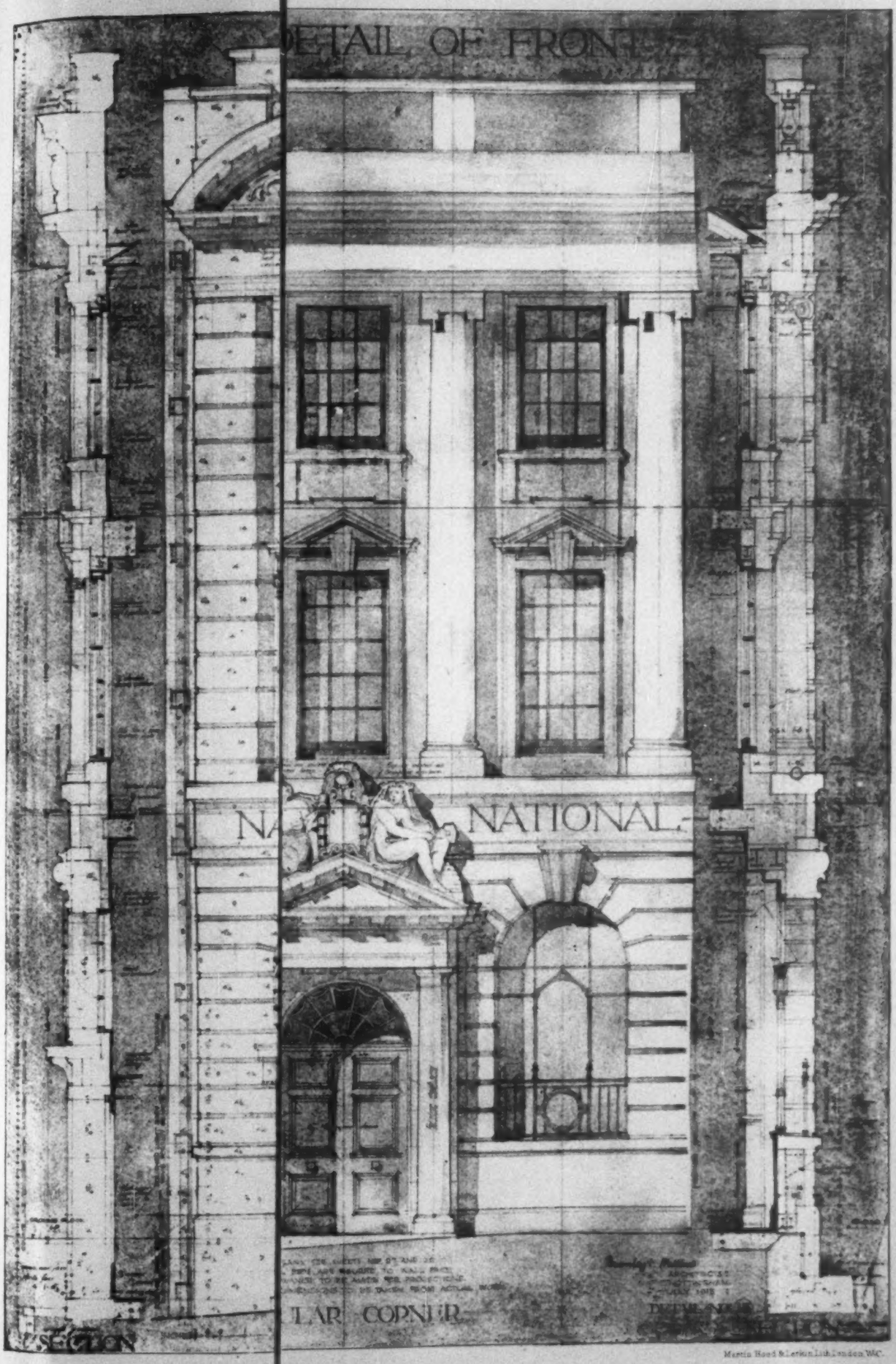
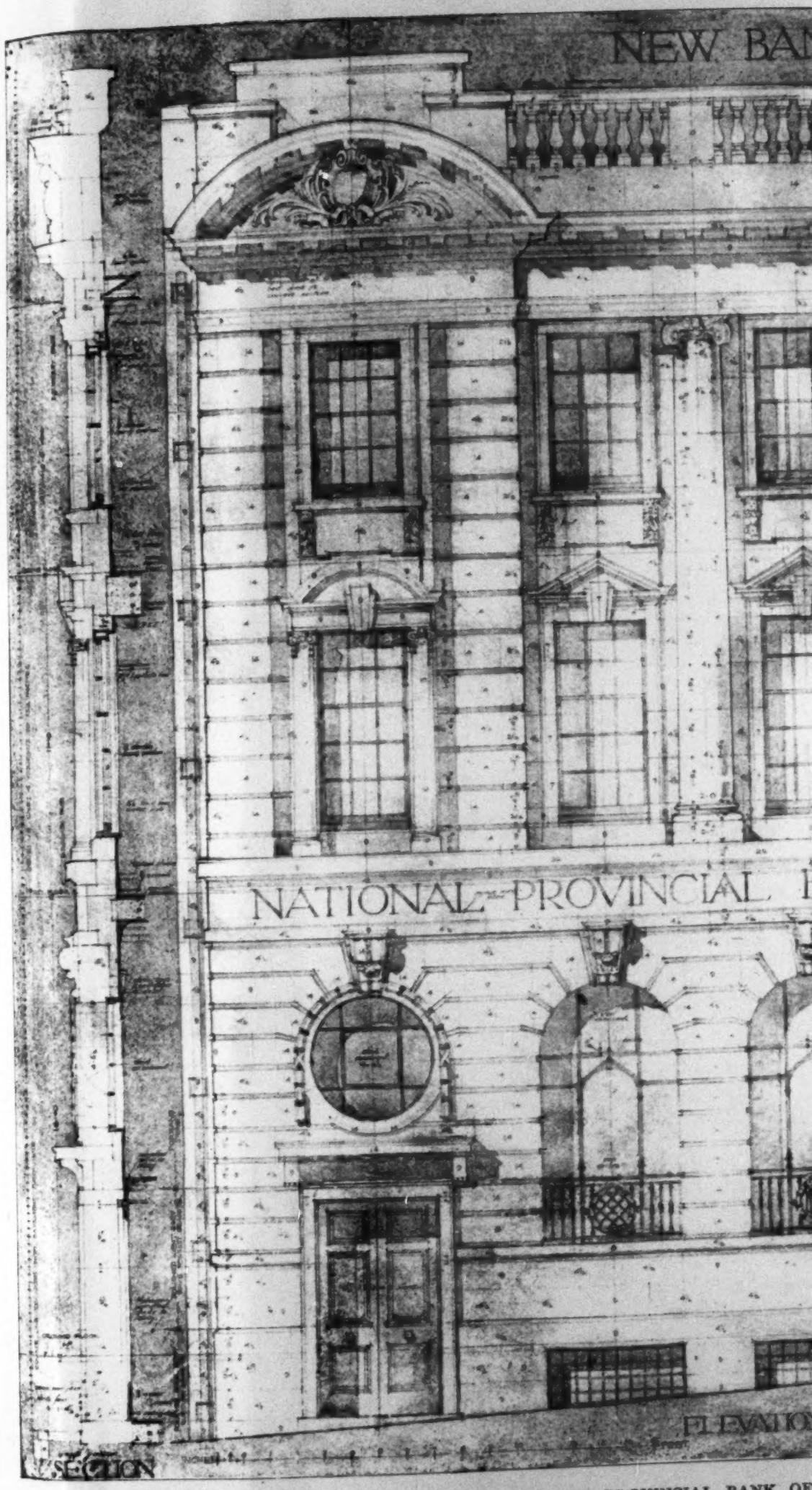
POLLARDS' WOOD GRANGE, CHALFONT ST. GILES, BUCKS: GARDEN FRONT.—Messrs. Forbes & Tate, Architects.

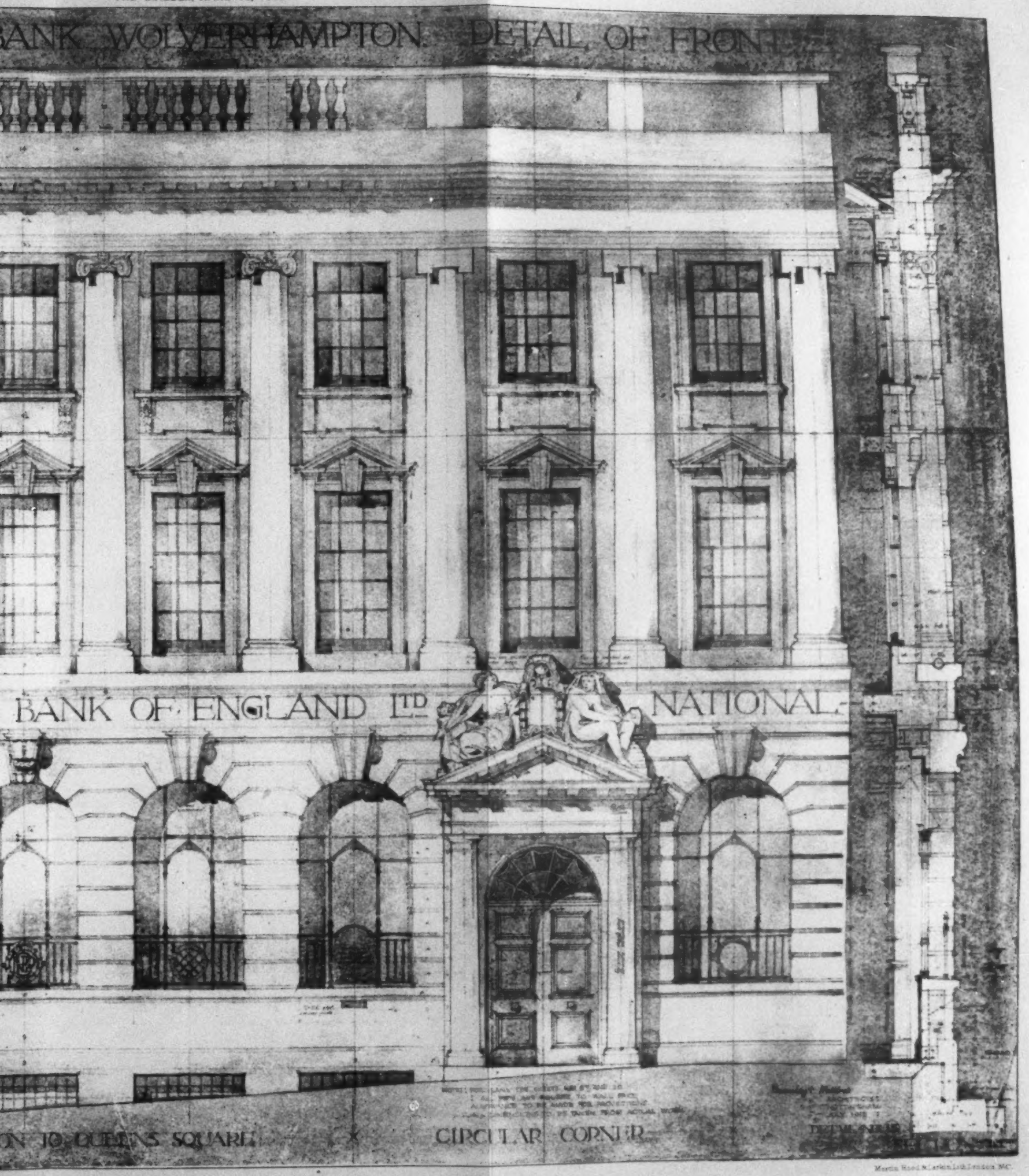


Martin Hood & Iverson Lith. London W.C.

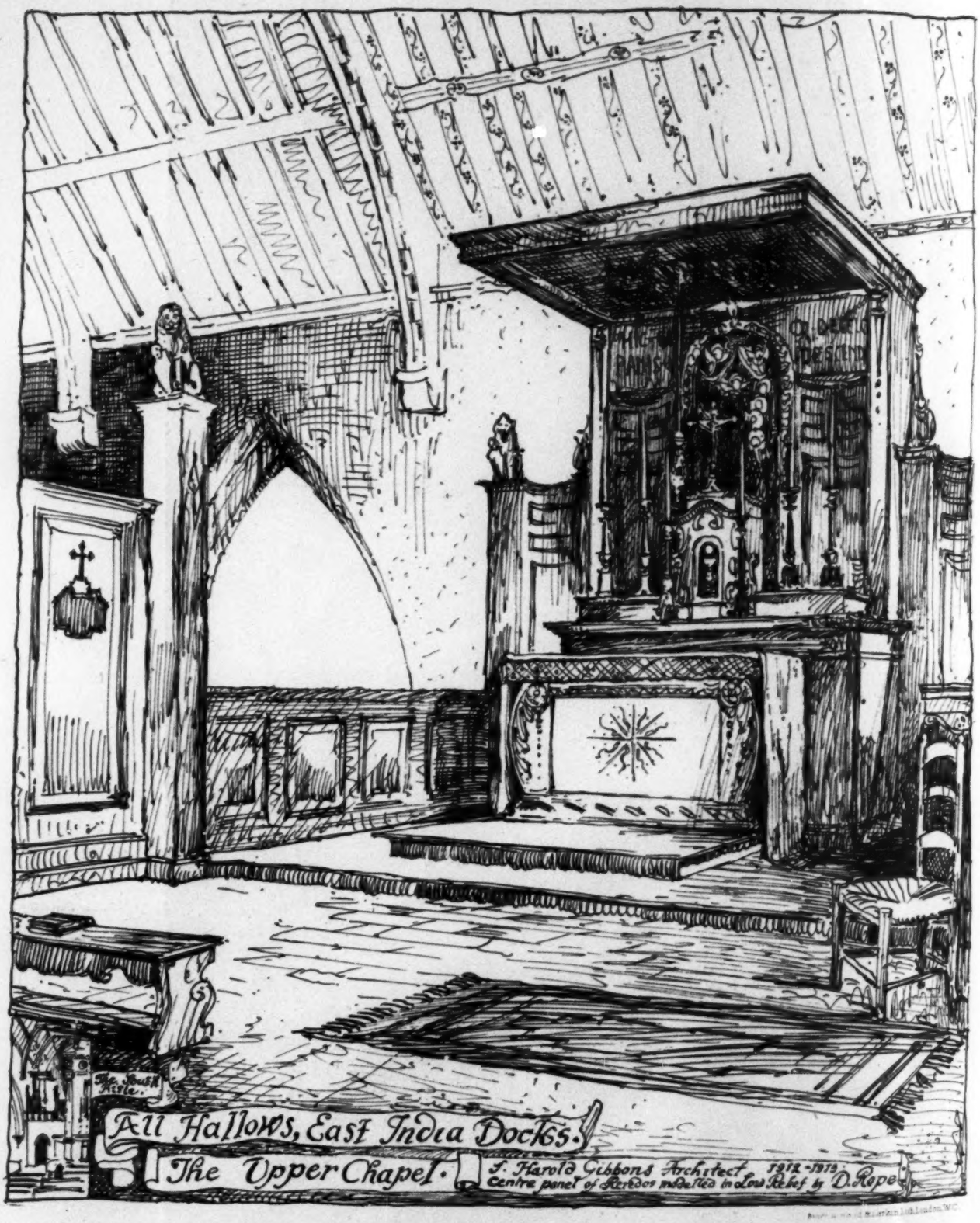
RY & WATKINS, ARCHITECTS.



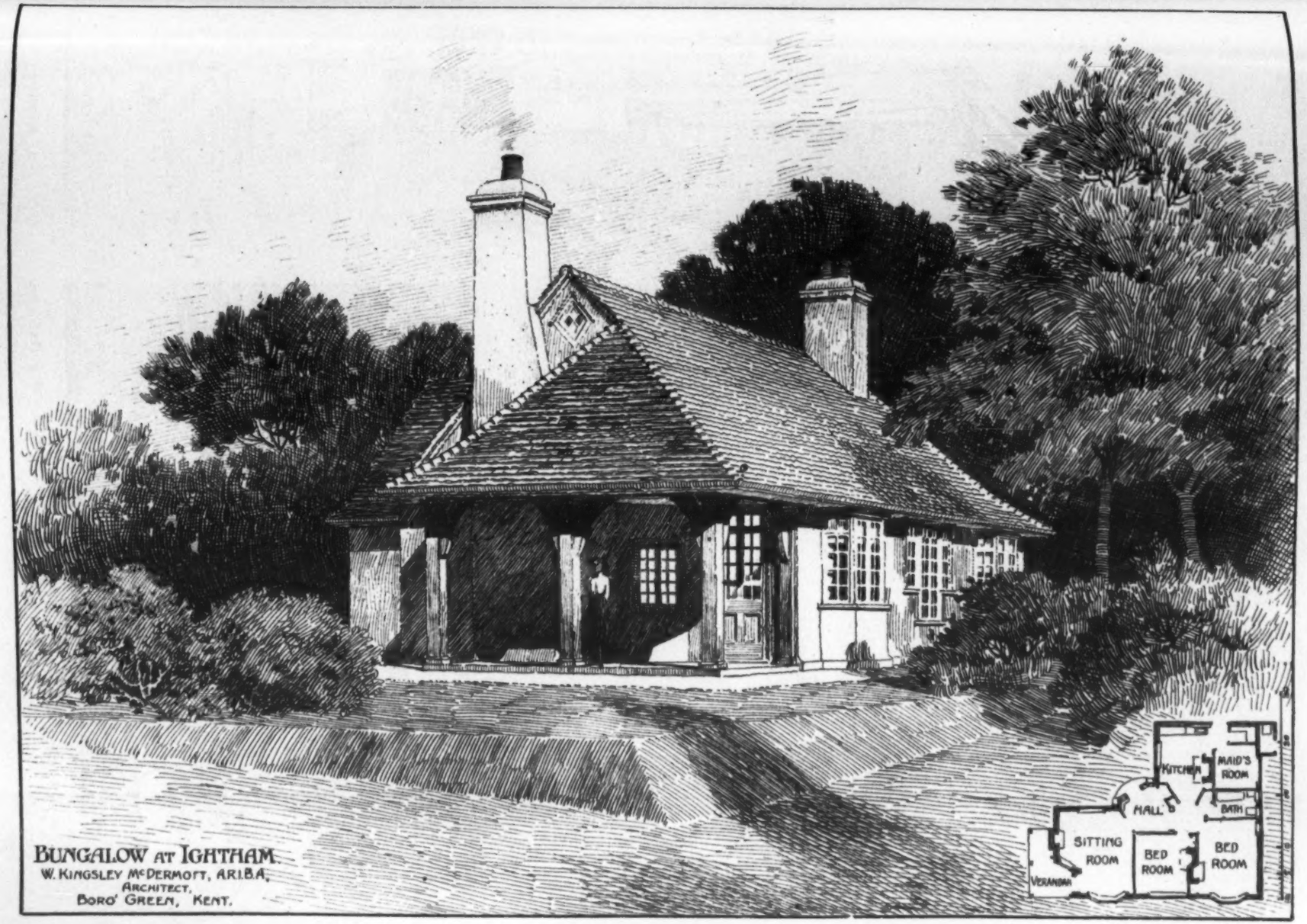
THE NATIONAL PROVINCIAL BANK OF



OF ENGLAND, WOLVERHAMPTON: DETAIL OF FRONT.—Messrs. Bromley & Watkins, Architects.


All Hallows, East India Docks.
The Upper Chapel.
J. Harold Gibbons Architect. 1912-1913.
Centre panel of Reredos modelled in Low Relief by D. Rope.

ALL HALLOWS, EAST INDIA DOCKS: THE UPPER CHAPEL.—Mr. J. HAROLD GIBBONS, A.R.I.B.A., ARCHITECT.



BUNGALOW, IGHTHAM, KENT.—Mr. W. KINGSLEY McDERMOTT, A.P.I.B.A., ARCHITECT.

CIVIC DESIGN SECTION.

THE TOWN-PLANNING PROCEDURE REVISED REGULATIONS.

ONE of Mr. Burns' last acts as President of the Local Government Board was the issue of Revised Regulations for Town-Planning Procedure, which will be received with satisfaction by all concerned. The simplifications embodied in the new Regulations, the Board says in a covering letter, are the outcome of four years' experience of the old Regulations, and careful consideration has been given to representations made on the subject by local authorities and similar bodies.

The amended Regulations apply only to schemes prepared by local authorities, whilst the old Regulations are still in force as regards schemes proposed by owners.

The chief alterations have been made, as was to be expected, in the part affecting the first stage—*i.e.*, that covering the application to prepare a scheme fixing the area which is to be dealt with.

In enumerating the various clauses of the preliminary stage we note the principal changes involved.

Article I.—Local authorities shall, within seven days of deciding to consider a proposal, serve notice of such decision on any Council interested in the land.

Article II.—Notice to be served upon owners at least four weeks before application for authority to prepare a scheme. This was formerly eight weeks. Notice at same time to be published in local newspaper. No requirement to serve notices on occupiers.

Map No. 1 to be on the scale of 25·344 inches to the mile, but copy to be sent to other authorities included in a scheme need only be on a 6-in. scale, with a right of the outside authority to demand a copy, as far as its own area is concerned, on the larger scale.

Article III.—The local authority shall, before making application, consider any objections raised by interested parties. Formerly the authority was required to call a conference of owners and other persons interested, but now the alternative of making a formal offer to meet such persons if desired is permitted.

Article IV.—Map No. 1, with some few further particulars mentioned in the Regulations, can be used as Map No. 2. The requirement that the latter must show proposed and existing roads, sewers, gas and water mains, etc., is discontinued.

Article V.—This sets out the various particulars to be furnished to the Board on making the application, and practically covers the former Articles V. and VIII. Map No. 3 is entirely done away with, so that for the first stage only one map is required where three were formerly.

Article VI.—This gives particulars of information required as regards cost, area, population, rates and debts, etc.

Article VII.—Notice of the fact and date of the resolution making the application, by advertisement in a local newspaper, to be given by local authority.

Coming to the second part, dealing with the procedure during, on and after the preparation of the schemes, the modifications will not be found to be very considerable. A substantial saving of labour is effected by the omission of Map No. 6, the 6-in. scale Ordnance map previously required. Also, as in the first stage, it will not be necessary in the future to inform interested parties individually of sanction having been given to prepare a scheme, but an advertisement in a local paper will suffice. The subsequent notices can be dealt with in a like manner.

From this it will be seen that a large saving of time and expense will result from the new code, whilst still containing all necessary safeguards. The tendency is therefore sure to be an increase of applications made, as officials of the authorities concerned, being after all human, are not likely to favour a new task if it involves an enormous amount of extra work.

TOWN-PLANNING CONFERENCE.

On April 1 and 2 a Greater London Conference of local authorities was held at the Westminster Palace Hotel under the auspices of the National Housing and Town Planning Council to consider the practical administration of the Town Planning clauses of the Housing and Town Planning Act, 1909. As has been the case at previous Conferences, the proceedings were strictly practical. Last year the Conference devoted itself to the detailed consideration of the Birmingham (Harborne and Quinton) Town-Planning Scheme, and last week the Ruislip-Northwood Town-Planning Scheme, which is now passing through its final stage, was dealt with in a similar way.

Alderman W. Thompson (Chairman of the National Housing and Town Planning Council) took the chair, and in opening the proceedings said they were moving very slowly, but that was not a bad thing if it was going to lead to a decisive movement at an early date, and if it gave the keynote to a real Town Planning Act to make things move all over the country, to make compulsory town planning, and have the whole matter tackled in a business way by the central Government. But still it was very depressing to those who might think they were going to get the problem solved on the lines of the present Act, at any rate, in their own lifetime. The slowness, however, had been of advantage if they regarded the work done up to now as purely educational work. Future London was in the hands of the authorities who were represented there, and much depended on how the outer ring of London was going to be built. The County of London was decreasing in population, whilst the population of the districts they represented was rapidly increasing. It was for them to settle whether London should be surrounded by what was nearly as bad as slums, or whether Outer London should be built on sound scientific lines, which would enable people to live in the true sense of the term—surrounded by fresh air, sunshine, and vegetation.

Councillor F. N. Elgood (Chairman of the Town Planning Committee of the Ruislip-Northwood Urban District Council) gave a summary of the principal provisions of the town-planning scheme in his area. A map of the district was given showing the land unit adopted. In order to deal with the question of the limitation of the number of houses to the acre the map of the area was divided into uniform squares of 5 acres. These squares were marked in red lines and the land belonging to the same owner which was comprised in any one of the 5-acre squares was, for the purposes of the town-planning scheme, regarded as a land unit. Provision was made in special cases for varying the size of this land unit in various ways, but so that in no case the land unit should exceed 7 acres. As to the limitation of number of buildings to the acre, the map was divided into areas edged as follows on the map:—Yellow, orange, medium green, and blue; and it was explained that on the areas edged with yellow an average of four buildings to the acre, roads included, must not be exceeded; on the areas edged with orange an average of six buildings to the acre, roads included, must not be exceeded; on the areas edged with medium green an average of eight buildings to the acre, roads included, must not be exceeded; on the areas edged with blue an average of twelve buildings to the acre, roads included, must not be exceeded. These limitations of the number of buildings per acre were to be averaged over the whole land unit, but as many as twenty buildings might be built on any single acre. In the case of a dwelling-house being adapted for occupation by more than two and not more than four families, such dwelling-house should be reckoned as two buildings. If adapted for occupation by more than four families it should be reckoned as three buildings.

Replying to a question, Mr. Elgood said that, in limiting the number of houses to the acre, his Council had regard to the wishes of the landowners. In all cases they had the co-operation of the landowners, and he could not recollect one case where objection had been taken by the landowner to the limitation.

Mr. Manning (Staines) raised the question of whether, with the unit of 5 acres, it would not be possible for a person, in the case of the limitation of four houses to the acre, to leave 4 acres open space and crowd twenty houses on the remaining acre.

Mr. Elgood said that might be so. He was not sure that it would not be desirable for some local authority in a scheme to try to introduce a provision dealing with the cost of the houses. They had not done so in their scheme. They had been urged to increase the size of their unit, but not to reduce it.

Mr. Bailey (Uxbridge) asked if any provision was made in the scheme for the housing of the working classes.

The Chairman pointed out that in every part of the district there were possible sites for houses for the working classes.

Mr. Abbott (Clerk to the Ruislip-Northwood Urban District Council) pointed out that under the Town Planning Act they took no power to build.

Mr. H. R. Aldridge (Secretary) remarked that this was a matter of importance, as there was an impression that town planning might increase the cost of workmen's dwellings, and it was well for the Conference to face that.

Dr. Laurence raised the question of the position of a landowner building houses, of which plans had been passed previously, after a town-planning scheme had been prepared.

Mr. Abbott said the position as he understood it was this:—The local authority had served a notice of intention to apply to the Local Government Board for authority to prepare a scheme. That did not help them, and therefore the Local Government Board had cut down the time from two months to one month. If a man had got his plans approved by the Council for thirty houses to the acre under the by-laws, so far as he could see that would not help him in the least. If the man erected his houses before the date of applying for authority, the local authority was helpless. If, on the other hand, he had not begun to erect his houses on the date when the local authority applied for authority to prepare a scheme, then immediately he began to build they could give him notice; and if he went on building he might be liable to have the buildings pulled down without compensation. They could then under their scheme insert a provision that any buildings which had been erected since the date when they applied for authority was a contravention of the clauses limiting the number of houses to the acre.

Mr. Aldridge put the following question, viz.:—"Before you have passed any resolution with regard to a town-planning scheme a man has sent in plans for the lay-out of certain streets, and these plans have been approved by the local authority. Later, when you applied for permission to prepare a scheme, he, on the strength of the approval of his earlier plans, goes on to build. What is the position with regard to that man?"

Mr. Abbott said the same principle applied. He supposed they could get power under a scheme to pull up a man's road and lay it down in grass if it were a reasonable thing, but he supposed it would not be reasonable.

Mr. Gardner said the position bristled with litigation.

Mr. Elgood said it depended to some extent on the pluck of the local authority. If the local authority felt that this was a matter so important that they must at all costs prevent it, then they could put clauses into their scheme which would enable them to pull down and remove such houses as were in contravention of the main idea of the scheme. But they had to make the Local Government Board understand that their provisions with regard to limitation were reasonable. If they were reasonable no compensation was payable. If they could not get them to agree that the provisions were reasonable, then they were liable for a claim for compensation.

Mr. Aldridge said the point was an important

one for many local authorities. It was sometimes the case that a local authority had given permission to a man to lay-out streets with thirty houses to the acre. Afterwards permission was given to the local authority to prepare a scheme, but the landowner persisted in going on to erect thirty houses to the acre, and said he had permission in writing from the local authority to do so.

The Chairman said they could put a provision in the scheme to pull down the houses if they contravened the scheme, notwithstanding the fact that before the scheme they had approved that particular lay-out.

Mr. J. Jones (West Ham) asked if it was possible for the local authority by simply inserting a clause in the scheme to make it retrospective.

Mr. Abbott said they could not make a scheme restrospective, but they could insert provisions which would prevent people from doing things which they knew perfectly well under the scheme they would not be able to do. They could not put it higher than that.

Mr. Aldridge said that, assuming a man had sent in his plans and had done a certain amount of road-making, and then the local authority came along and prepared a town-planning scheme, what would be the scope of the compensation? Would it be limited to the actual street work done, or could he get compensation in respect of the limitation of the number of houses?

Mr. Abbott said they had not had a case of compensation, and it was a difficult question to answer. If the Local Government Board said that twelve houses to the acre was reasonable, and the man wished to put up twenty houses, he would not get compensation. The making of the road, however, had nothing to do with the number of houses to the acre.

Mr. Ellis (Hayes) said let them suppose that in January the Hayes Council agreed that a certain piece of land should be laid out thirty houses to the acre, and that the landowner entered into a contract with a builder to start building in the summer. Suppose, then, the Hayes Council in April went to the Local Government Board for permission to prepare a scheme. Under those circumstances would the man be entitled to compensation?

The Chairman said the man would be entitled to compensation if he had entered into a contract before application was made for authority to carry out a scheme. But if the building had not been begun before the date of the application, and no contract had been entered into, then the local authority was within its rights in throwing over their old approval.

Mr. Body (Birmingham) explained the land unit adopted in that city. Presuming an owner wanted to develop his estate, he put in his building plan, and the Corporation under their scheme asked him to submit with the building plan a plan showing all his land in the neighbourhood so that they might be able to judge the relation of one piece of land to the other. If the man had no other land in the area then the building plan he submitted became his land unit, and the Corporation were under the necessity of prescribing the maximum number of houses the owner could put on the land unit. That was the practice shortly. In the Quinton area, which was largely a first-class residential area in one part, and was an industrial residential area in another part, the average must not exceed twelve to the acre, but in certain areas which were defined on the map twenty houses to the acre might be erected. In East Birmingham, which was a large industrial area with a considerable amount of undeveloped land on its boundaries, the area was zoned off. Close to the manufacturing areas it could be as high as eighteen to the acre, and when they got further out it was fifteen to the acre, whilst when they got to the rural part it was twelve to the acre. There again the highest number of houses a man could put on his land was twenty on any one acre.

The Chairman said he took it that in Birmingham the unit was a single ownership.

Mr. Body said that practically that was so.

Mr. Aldridge asked if they could have a unit of 100 acres.

Mr. Body said the Corporation might allow that.

Mr. Abbott then explained the Ruislip scheme with regard to the height and character of buildings and the space about buildings. With the exception of public buildings and buildings of a warehouse class, no building could be erected of a greater height than 60 ft. (exclusive of stories in the roof, etc.), and no building, not being a public building or building of the warehouse class, could be of a greater height than the distance from the main front wall to the opposite boundary of the street. For the purpose of describing the character of the buildings to be erected various special areas on the map were coloured pink and yellow. No building of the warehouse class could be erected except on the area coloured pink. No buildings except those erected for the purpose of, or adapted to be used as, shops or business premises could be erected except on the areas coloured pink and yellow. The rest of the land included in the scheme was limited to private and professional buildings. The Council might, however, on application, consent to the carrying on of handicrafts and the selling of the products thereof, but none of the products or materials used should be exposed in the windows. Buildings to be used for agricultural or horticultural purposes might, however, be erected on any part of the area. In regard to the design of the buildings to be erected, if the Council were of opinion that the character of the buildings—whether on account of the design or the undue repetition of the design, or the materials to be used—proposed to be erected would be injurious to the amenity of the neighbourhood the Council might, subject to an appeal to the Local Government Board, require reasonable alterations to be made. Provisions were also made as to height of windows in rooms. It was also provided that no bedroom or other habitable room should have a floor area of less than 70 sq. ft. or contain less than 500 cubic ft. Every new dwelling-house should be provided with at least one living-room with a floor space of not less than 144 sq. ft., and containing not less than 1,132 cubic ft., and one bedroom having a floor area of not less than 132 sq. ft., and containing not less than 1,000 cubic ft. Where building lines were shown upon the map no erection other than boundary walls or fences could be erected nearer to the street than such building line. In streets where no building line was shown on the map no building other than boundary walls or fences could be erected nearer to the centre of the street than 30 ft., or nearer to the boundary of the street than 15 ft. This was, however, subject to modification in the case of dwelling-houses erected round a quadrangle or other open space. Special provisions were also made in regard to public buildings, buildings on corner sites, shops, etc. In the case of shops, warehouses, schools, etc., such buildings must not cover more than the half of the whole area of the site. In the case of dwelling-houses not more than one-fourth of the whole site could be covered by buildings, though in exceptional cases it was provided that not more than one-third of the site should be covered with buildings.

Mr. Abbott impressed on the Conference that all the provisions, both with regard to the limitation of the number of houses and the height and character of buildings, had been held by the Local Government Board to be reasonable, so that there was no compensation payable in respect to any of them. The provision with regard to the design of a building was an important one. It seemed to his Council that there must be some control over the elevation of the buildings, or otherwise the scheme would be defective, but it was an extremely difficult matter to decide who was to be the judge.

The Chairman pointed out that the provision of the floor space, as well as height, was of vital importance.

A good deal of discussion took place on the question of the provision to be made for shops, and Mr. Trumble (Croydon) pointed out that there might be difficulty, as an area might develop for residences, and some of the land set aside for shops might be devoted to houses with benefit to all. They could alter a private house into a shop, but from the investor's point of view it was difficult to turn a shop into a private house.

Mr. Elgood said they considered the matter very carefully, and to some extent they met the objections by a compromise. For instance, they made up their minds that there must be shopping areas in proximity to the railway stations. They had only scheduled comparatively small areas where shops were compulsory but they had extended the areas adjoining as optional shopping areas, so that if the trade in the particular centre grew largely, these optional areas would come in. They had tried to avoid the unfortunate corner shop in every street.

Mr. Alan Munby asked what a "professional building" was.

Mr. Abbott said it was always held to apply to the "brass plate"—to the doctor and lawyer and music teacher, and so on.

On the question of the height of buildings, etc., Mr. Aldridge asked whether—leaving out the jerry-builder—there was anything in these provisions which would make building more costly, and which would drive out the cheap builder as apart from the jerry-builder.

The Chairman said he supposed he was the only one in the room who had erected buildings under such provisions as had been explained. Where they got concessions in the way of cheap roads, the cost was reduced, but where they had to make the usual by-law road, then his apprehension was that the cost of building would be increased.

Mr. Elgood held that, so far as building construction was concerned, the provisions in their scheme did not increase the cost.

The Chairman remarked that he had had to draw cheques for the buildings. Under the scheme they had to show more plans, and there was delay and greater control, which must add to the cost. At the same time, it added to the standard of excellence of the building.

Mr. Yates (Teddington) asked for a definition of a jerry-builder, a cheap builder, and a speculative builder.

The Chairman: A speculator may be a cheap builder and a jerry-builder, but need not be. A jerry-builder may be a speculator, and is probably a cheap builder, but he need not be. A cheap builder need not be either a speculator or a jerry-builder.

On the question of the method of dealing with open spaces, Dr. Laurence asked whether, when land was given as an open space, it meant that an ambulance station or an underground convenience might be erected on it.

Mr. Elgood said if it was given for a highway it could not be used for building.

The subject of streets and quadrangles in the Ruislip scheme was next dealt with by Mr. Elgood. A number of new streets were shown on the map, and the widening of a number of existing streets was also shown. In respect of any of the new streets shown on the map to be made of a greater width than 40 ft. no owner was required to bear any greater expense in the erection of street works than that of the width of 40 ft. Any greater expense was to be borne by the Council. Various provisions were included in the scheme relative to the widening of existing streets. It was also provided that the Council might enter into agreements with owners as to the adjustment of boundaries. A clause similar to that inserted in the Birmingham (Harborne and Quinton) Scheme relative to the compulsory adjustment of boundaries were also embodied in the scheme. The following were the provisions for allowing a less width of street than was provided for in the by-laws: (I.) Anyone laying out a new street in which no buildings other than dwelling houses are proposed to be erected may construct such street 28 ft. in width if the following conditions are complied with: (*a*) The street shall not be more than 900 ft. in length; (*b*) turning places shall be provided every 450 ft.; (*c*) the street shall communicate at each end with a street 40 ft. or more in width, and must not be in direct continuation of such a street, provided that it may communicate with any old highway of less width than 40 ft. which is existing at the present time; (*d*) the surface of road shall be made up of same strength and materials as is required for by-law streets. (II.) Further relaxation of by-law requirements as to width of streets is to be given to owners who, when developing their land, are prepared to set aside one-tenth of the area of such land as public or private open spaces. These relaxations are: (*a*) A street not exceeding 350 ft. in length may be constructed of a width of not less than 20 ft.; (*b*) a street not exceeding 750 ft. in length may be constructed of a width of not less than 24 ft.; (*c*) a street not exceeding 1,500 ft. in length may be constructed of a width of not less than 30 ft. In all cases the provisions named above under I. (*b*) and (*c*) relating to turning places, communications, etc., shall apply.

In answer to a question, Mr. Abbott said that so long as land was used for agricultural purposes the Council would bear the interest on the cost of making up the road.

Mr. Brown (Edmonton) pointed out that in his district they had roads going over brickfields, and the clay had not been worked out. If they

made a street over a brickfield before the clay was worked out who would pay for it?

Mr. Abbott said he took it that a district having to deal with a special property like that would insert special clauses.

Mr. Aldridge said the point of special importance was that of the main arterial roads.

Mr. Elgood said there was no main arterial road in his district. There was one shown on the map of the Traffic Department of the Board of Trade, but they did not include it in their scheme because they could not get any guarantees that it would be continued. He advised local authorities not to include in their scheme any road in regard to which they could get no guarantees unless it was of value to their own district. In their case nearly every landowner had agreed in the case of two long roads to give land up to 60 ft. without charge. It remained to be seen whether in the case of the other two owners they could claim compensation, but if they did they might possibly be met by corresponding claims for betterment.

The Chairman suggested that they should make a close study of the clauses in the Ruislip scheme dealing with the making of roads. He might say that the architects of the scheme he was carrying out at Ruislip thought it was too great a power, and he believed it would be opposed in Parliament.

Mr. Tuckett (Surveyors' Institution) raised the point of an owner wishing to develop his land and requiring a road of 40 ft. or under which would have to pass over the land of an adjoining landowner who did not want the road. He gathered that unless the road was over 40 ft. the local authority could not be called upon to make it.

Mr. Elgood said their scheme gave the landowner the right to call on the local authority to make a road when it was over 40 ft., but the Council had also power on its own initiative to make any road, whatever the width might be. In the case mentioned by Mr. Tuckett, and which was one which might constantly arise, he took it that the Council would negotiate with the landowner and would point out that the road would be mainly of value to him and would arrange terms with him on which the road might be made.

Mr. Aldridge asked whether the scheme did not break new ground in that it brought into existence a completely new type of road. That was to say that the Ruislip and Birmingham schemes really involved breaking away from the normal 36-ft. by-road and bringing into existence a completely new scheme of road-making in which they got down to the road of only 18 ft. Might one take it that this Conference really marked a point in the development of building estates in which they were all agreed that this new type of road was preferable to the old one.

Several delegates expressed the opinion that in allowing narrow roads they were going back instead of forward, and others pointed out that if they allowed narrower streets they would probably be constructed in a better manner.

Mr. Elgood remarked that so far as their scheme was concerned it did not deal with the method of construction. All their roads were made up under the Private Street Works Act, and they were made up in different quality according to the traffic they would have to bear.

Further discussion followed on the question of the construction of roads, and Mr. Aldridge said he was anxious not to allow it to get into people's minds that town planning was going to increase the cost of building and so render town-planned districts unavailable for the working classes. What they wanted in the home was not the noise of traffic, but the quiet and rest of the garden in a properly-planned area. With all these new ideas of quadrangles and little leafy lanes and open spaces, they were beginning to develop their areas on scientific lines.

The Chairman said his interest was mainly in the rents for workmen's cottages, and if they did anything to put up the rents to the workmen the whole machinery of town planning would go. Therefore they had to study very carefully whether the concession with regard to roads was a real concession. In his judgment it could be made a real concession. It could be made real if they could stick to the doctrine of allowing them to make roads no wider than they need be, and they must not take away that concession by insisting that such roads should be made of an unnecessary thickness. Further than this, when the roads were made they ought to have control over the kind of traffic which should use them.

ANOTHER PLAYING FIELD FOR LONDON.

THE Lambeth Borough Council have agreed to accept conveyance of the Knight's Hill Playing Field, West Norwood, to them. Complete success has thus crowned the efforts to acquire this field for use as a children's playground.

Local effort is answerable for this preservation of a hill-top forming one of the ramparts of the County of London, precisely as it was in the case of the hillside now comprising Norwood Park and the recently-acquired "Rookery" adjoining Streatham Common, now converted under the auspices of the London County Council into what is admittedly the most attractive of all the gardens which they have laid out for public use and enjoyment.

While these two spaces are relatively near to Knights' Hill they do not answer the health requirements of the hive of workers occupying some 600, mainly double tenement, houses adjacent. There must be some thousands of children in those houses, and they, or the bulk of them, will get a direct access to their playing field without even crossing a main thoroughfare or any of the hilly, motor-frequented roads which lead to the larger open spaces.

The Archbishop of Canterbury was one of the earliest supporters of the scheme. All the local members of the Lambeth Borough Council identified themselves with it from its inception, and the Mayor (Mr. Alderman Jabez Williams, J.P.) is President of the Acquisition Committee. Several influential persons, as well as the Metropolitan Public Gardens Association, set an example in financial support which, with the help which is anticipated from the London County Council, quickly resulted in the purchase-money of £1,250 being forthcoming. There remained the very real difficulty of the provision for the maintenance of such a relatively small space, and it is upon this that the important decision was arrived at in the undertaking of the Lambeth Borough Council to accept a conveyance of the property to them subject to certain requirements with which the Purchase Committee has, after long and delicate negotiation, been able to comply, and to the field being handed over in a state ready for use by the children.

The decision of the Council will afford universal gratification, and we cannot imagine that the Purchase Committee will have much difficulty in raising the balance of £350 required for laying out, fencing, and draining the land. Donations for this additional fund will be gratefully received and acknowledged by Mr. Covington, Hon. Treasurer, and may be sent to him at "The Lodge," Gibson's-hill, Norwood.

DUBLIN HOUSING INQUIRY.

AN inquiry was recently held by four local Government Board Inspectors into the conditions of housing in Dublin. Summarising the Report, the *Irish Builder and Engineer* says:—

"The worst opinions expressed on the housing conditions are shown to be well founded. The conditions of life in the tenement houses are physically and morally bad. The tenement houses have no privacy, the meaning of a home cannot be realised therein, and the atmosphere is the worst possible for the upbringing of the rising generation, who learn evil from the earliest days of childhood, and, needless to say, enormously adds to the problem of the criminal, pauper, and diseased elements in the community.

The whole system of tenement houses is rightly condemned, root and branch, and the houses are found in an enormous number of cases to be, even such as they are, not properly maintained, but dirty, neglected, and insanitary, as well as overcrowded.

The responsibility for the existing state of things rests primarily, of course, upon the owners of the houses, and is a feature vastly complicated by the multiplication of interests common in house property in the older parts of the city; as many as five different interests being not unusual, the interest of each owner being necessarily small, there is less inducement to expend money on repairs, save under compulsion.

The death rate of Dublin is substantially higher than that of any of the large towns of England, a fact that must be largely attributable to the state of housing here, and must greatly nullify the efforts to stamp out tuberculosis; though it must not be forgotten that Dublin is not naturally a healthy or bracing locality, a considerable portion of the city being built on low-lying reclaimed land, still subject to tidal influence.

There are in Dublin, the Report declares, a large number of owners devoid of any sense of responsibility as landlords, calculating on the lack of firm administration of the sanitary laws by the Corporation to screen them from consequences. Amongst them must be classed several members of the Corporation, owners of "third-class" tenement houses, the worst class of houses known under the municipal system, which classifies them into first, second, and third class, the latter being certified to be unfit for human habitation. The most discreditable feature of this phase is that two such members are actually receiving rebates of rates under a special clause of the Corporation Act for well-kept dwellings, a clause designed for the encouragement of improving owners! Under that Act, too, it is mandatory on the Corporation to keep a Tenement Register. Prior to 1901 none was kept, and since then the information recorded is incomplete, and therefore practically useless. In point of fact there are nearly 28,000 persons in Dublin living in houses classed as unfit for human habitation, and in regard to density of population, things are in a substantially worse condition than in 1880. A very startling fact."

CIVIC DESIGN NOTES.

An Eastern Garden City. THE following note appears in the February issue of *Garden Cities and Town Planning*:—"The name 'Garden City' has penetrated to the uttermost East, judging from a paragraph which appears in the *Malay Mail* of December 10. A corner of the newspaper reaches us anonymously, and we are unable to give any further particulars than the following statement: The Kowloon Garden City has been formally inaugurated by the purchase of a seventy-five years' lease of 232,225 sq. ft. of building land near Yaumati Railway Station, out of which forty-six persons have already taken up plots on which to build their own houses. The scheme involves an outlay of a quarter of a million dollars, and the Portuguese community is the most deeply interested among the potential householders." What greater encouragement could those who have the interests of the Garden City movement at heart wish for?

The Housing Question in Austria. AT a meeting of the Austrian Sanitary Institute, held a short time ago in Vienna, the Chairman called attention to the extent to which the health question had pushed its way during the last twenty years where housing problems were being considered. He pointed out, however, that the result was very unequal in many cases, as in some the financial side was still given far too much consideration, whilst in others money was wasted by building too luxuriously, especially in public buildings. In fact, he thought the difference between building healthily and luxuriously was often not properly understood and therefore led to damaging results. The light and air question was discussed in its relation to tenement buildings, and the disadvantages of the latter emphasised. The fact that in England Garden Cities had been erected in connection with large factories showed that there was no need to wait for statesmen to solve that question. Special mention was made of the "Penny wise, pound foolish" policy so often adopted—*i.e.*, buildings erected as cheaply as possible with large repairs accounts following soon.

Western Approach Road. THE new road will be constructed under the directions and superintendence of Mr. H. T. Wakelam, Middlesex County Engineer, whose plans provide for a route 80 ft. wide throughout its entire length of between 5 and 6 miles, with footpaths and six or seven lines of traffic. It branches out of the high road through Chiswick at a point near St. James's Church, and, leaving Brentford to the south, traverses Carville Hall Estate, whence it continues in a nearly straight course to near Spring Grove Station, through Lampton and Sutton, passing Osterley Park, Lampton Hall, and Sutton House to enter the Bath road near Lavender Cottage, at a point 1 mile west from Bell Inn Corner, Hounslow.

THE BUILDING TRADE.

THE LONDON DISPUTE.

ON Monday last the London Master Builders' Association came to a decision on the recommendation of the National Board of Conciliation, which is conditionally accepted as to the principle of Clause 1. Particulars are fully given elsewhere in this issue.

Considering the past history of this dispute, conditions of some kind were to be expected. It must not be forgotten that the employers set out to enforce the principle of the honourable observance of working-rule agreements; that that principle has been fully conceded to them, both by the proposals put forward by the local operatives and by the recommendation of the National Board, which the local operatives accepted in every particular. The whole question, therefore, is reduced to one of details as to the guarantees for the carrying out of the principle conceded. The employers have accepted the principle of collateral guarantee of local working-rule agreements by the head executives of the unions concerned.

Before they could do that it was necessary to examine into the nature of the collateral guarantee and how far the head executives of the unions were in a position under their constitutions to give effect thereto. This has caused a considerable, but, in the circumstances, necessary delay.

It should be noted that the recommendation of the National Board dealt in general terms with that side of the question, and did not say in so many words that the head executives could and would fine members who failed to observe working-rule agreements so guaranteed, although it is well known that they have the power to do so. With these things in mind, let us review the conditions appended by the employers to their acceptance of the recommendation. First, there is the reinstatement of the working-rule agreements which had been so recently entered into.

That is a condition which was to be expected, and its acceptance by the operatives ought not, in the circumstances, to present serious difficulty. Having conceded the employers' contention that working-rule agreements must be observed, the operatives can only look to the procedure provided under the rules themselves for any alteration in their clauses, and a moment's reflection will convince them that in justice and equity the *status quo ante* must be a condition of resumption. But the employers make it a condition that the agreement shall stand for four years.

While there may be room for a difference of opinion as to whether the period should be three, four, or five years, there ought not to be much difference on the question of the desirability of fixing some period.

The struggle has been lengthy, and time will be required to heal the wounds sustained by the contestants. The worst wound inflicted has been the destruction of confidence in the good faith of some of those concerned; to heal it time is required to test the efficacy of the collateral guarantees which the employers have accepted, although still believing that financial guarantees would be preferable. The operatives may have strong reasons for desiring to revise the working-rule agreements which it is proposed to reinstate, but they are more likely to succeed in obtaining an amelioration in their favour after confidence between them and the employers has been restored than before that event; indeed, to undertake any revision of the rules until then would be asking for trouble. On the whole, the interest of all concerned seems to lie in the acceptance of this condition.

The employers further desire the bringing into conformity with such working-rule agreements any rules of the operatives' unions which may be in conflict therewith.

This is a wise and fair proviso, and ought to be readily accepted; it would be manifestly unfair to have rules binding the members of a union to take certain steps in certain events and to bind them, in the same breath almost, to rules with the employers which make it impossible for the members of the union to carry out the one without breaking the other.

There can be no two voices in this matter; either operative union rules which are incompatible with the working-rule agreements entered into by the union must be made compatible with those agreements or working-rule agreements must be cancelled; it is not possible otherwise to honourably fulfil the obligations of membership in a trade union.

The next condition desired by the employers relates to the infliction of fines by the General Executive on members who may have committed breaches of the agreed working rules.

This condition sounds more, perhaps, than it really is; the original recommendation, which was accepted in every particular by the local operatives, provided for the suspension of all benefits in cases of breach. It appears to be thought that the penalty under that provision might prove illusory at times, hence the condition as to infliction of fines. The rules of most unions provide for this, and there should be no real difficulty in accepting this proviso or in applying it to officials who incite to, or condone, breaches of agreements. The next condition is peaceful working by the members of operative unions, on their returning to work, with all workmen who may then be engaged or who may have been employed during the dispute. This condition may be repugnant to the operatives who have been engaged in the dispute, but it should not be, in the circumstances, to the general unions concerned, who can look at the merits of the question with cooler heads than those who have been engaged in the fight.

The fact that the employers have been able to obtain so large a contingent of non-union labour—it is said some 8,000 men—shows that the local unions were never in a position of predominance sufficient to justify them in refusing to work with non-union men, even if they had not bound themselves by their working-rule agreement with the employers to do so. They have, therefore, no sound ground of refusal to do so now. They may be disposed to look upon the 8,000 men as blacklegs, but they are no such thing; they are the outward and visible sign that trade unionism in London has not yet succeeded in obtaining that amount of support which would justify it in taking any strong line whatever against fellow-workmen. The employers further require the abolition of ticket inspection in shops, and no blacklisting of members of the London Master Builders' Association.

This is a reasonable request. Ticket inspection should be carried on outside the employer's premises. And as regards blacklisting, the operatives usually themselves demand that there shall be no victimisation on either side at the close of a dispute.

The employers very rightly proffer a guarantee that members of the London Masters Builders' Association will be penalised financially if they commit breaches of working-rule agreements. In view of the contentions of the operatives as to breaches by employers in the past, this is a wise concession which ought to convince the operatives that the employers are thoroughly *bond fide* in their desire that the working-rule agreements shall be loyally observed on both sides.

THE PAINTING OF IRON AND CONDITIONS OF DURABILITY.

WHERE a surface is of such a nature that protection from atmospheric influences is an absolute necessity, the character of the paint applied to it is vital to prevent rapid deterioration. Hence the painting of iron merits special consideration, and the more so since its decay may jeopardise the structural safety of a building, and, being often used for heavy exposed work, the conditions for painted iron are generally more trying than those for wood, plaster, or other painted materials.

Before suitable means of protection can be discussed, the nature of rusting must be appreciated. In spite of a vast amount of work by chemists in this country and abroad on this important subject, it cannot be said that all the factors concerned with this form of decay have been fully determined Divergent views, for example, are still held as to the essential nature of the presence of carbonic acid gas. This, however, seems certain that both moisture and air acting together are necessary, and perhaps the only necessary, factors. As it is impracticable to keep structural iron in dry air, it must either be covered by some impervious coating or with some substance which, through chemical action with moisture or air, shall defeat their detrimental effect on the metal.

The exact way in which rusting occurs is a matter beyond the scope of this article, but so much has been heard of the electrolytic theory of decay, and it is so little understood, that reference thereto may be pertinent, and is, indeed, not unconnected with protective coverings. No commercial metals are simple elementary substances. Apart from recognised complex metals like brass and solder known as alloys, commercial metals all contain small percentages of foreign substances, which are often of great importance mechanically, and which do not appear to be diffused through the metal in an indefinite manner, but to form compounds possessing ascertainable boundaries within the mass of the metal. They may therefore be looked on as isolated substances, or islands in a sea of the metal proper.

Now, in the presence of the inevitable moisture of the atmosphere, and more particularly when that moisture, as often happens, is charged with acid bodies, these alloys, or "islands," in the metal form one of the poles of a minute electric battery, and an electric current flows between them and the metallic iron proper, or when the material contains free particles of carbon these act in a similar manner. An electric current involves the expenditure of energy which in this case is obtained by the oxidation or rusting of the iron just as that from a battery employed to ring an electric bell is produced by the rusting (eventual solution) of a piece of zinc. That this electrolytic action takes place under favourable circumstances there is little doubt, and not only does it occur between constituents of the metal itself, but also at times between the metal and the protective paint covering, and, worse still, between the metal and the rust actually formed in the process. This accounts for the tendency of a rust spot, once started, to grow and spread not unlike a vegetable growth, hence the desirability of not deferring repainting when required.

Various kinds of iron differ in the character of the rust which they produce. In the case of cast-iron this is usually of a nodular or lumpy nature, but in wrought-iron and the mild steel used in construction it is flaky. In this latter condition it is more deleterious, as it tends to separate from the metal, forming a space for the collection of moisture. Whether in lumps or flakes, rust occupies more space than the metal from which it is formed. Hence it tends to raise blisters in the surrounding paint or other protective film, which eventually break when stretched beyond their tensile strength, and so the evil increases. Rust, again, has considerable power of absorbing moisture, and thus assisting the conditions necessary for its extension. It is not main structural members themselves which are so likely to seriously deteriorate by rusting, but their connections to other members, and it is these connections which often present the most difficult places for the proper application of protective coverings.

The first essential for successful protection is the permanent adherence of the applied film to the metal, and this usually involves the careful cleaning of the surfaces before painting. This is most difficult to arrange effectually without a great deal of supervision. Such expressions in a specification as "thoroughly clean and free from rust and scale all ironwork before painting" usually carry little weight in practice unless particularly vigilant and appreciative supervision be forthcoming. This cleaning is usually done to the erected work by scrubbing with water and sand or emery, and the painter often follows on before the metal is dry, thereby actually imprisoning moisture under the paint. Sometimes pickling in acid (usually spirits of salt) is resorted to, necessarily most applicable to work in the yard before erection. This is effective provided the metal is subsequently

freed from all traces of acid by washing, and is then dried before painting. Sand blasting has also been used and has the advantage of being a dry process, and of removing equally scale or rust and grease which is not affected by acids or water. In important contracts it would appear to be a waste of money not to have all work thoroughly cleaned and painted in three, or at least two, good coats before leaving the engineer's yard. This involves supervision, which may be difficult if such yard is at a great distance; but, inasmuch as many structures are permanently assembled at least in sections before leaving the yard, this seems the only way in which real protection of many joints can be secured. At the same time it may be suggested that in these days of efficient electric motors a local blast plant for cleaning, which could be applied to steel in position, discharging, say, powdered carborundum and retaining it for reuse, should be quite practicable. It would be very rapid and efficient in action, and ought also to prove economical in labour. Once clean, painting should follow as rapidly as possible.

And what should the paint be? This, indeed, is the central subject of our discussion. The protective power of paint lies in the assemblage of the solid ingredients, not in the liquid medium, which may be regarded as merely binding the solid particles together and retaining them in position. Linseed oil alone, for example, is valueless as a permanent covering for iron, as it is not itself even impervious to moisture. It is, however, probably the best medium for paints for iron as for other materials. As to the base or pigment, authorities seem agreed that white-lead is very unsuitable. Red-lead, though frequently used, if employed alone is, on account of its great drying powers, apt to solidify the oil too quickly, and, owing to its weight, to be laid somewhat unevenly; orange-lead has been strongly recommended by one authority, and red oxide paints are very largely used. Black magnetic oxide of iron has been often employed, but, though this oxide, if formed on the metal at a red heat by the action of steam, is adherent and forms an excellent coating, as long as the metal is not bent or hammered, as a pigment in oil it does not seem to possess any special merits, and if it is merely the mineral ilmenite ground up it is apt to contain a good deal of coarse material. Graphite (black-lead) ground in oil forms a good protective paint, and its greasy nature helps to prevent the absorption of water.

The whole question of durability, however, is largely one of the relative sizes of the solid particles, provided, of course, that they are chemically stable. In this connection some interesting experiments were recently carried out in America on iron pigments of different finenesses. Various grades of iron oxide pigments were employed upon different large iron structures of similar character, and their protective power was assessed by noting the period which elapsed before repainting became necessary. The solids in the paints were submitted to microscopic examination, and it was found that the duration of life of the paints followed their quality as regarded fineness.

If a paint film were a wall, the solid particles rubble, and the oil mortar, and in building such wall the prevention of the percolation of water were the chief object, every care would be taken to fill up the interstices between the larger pieces of rubble with smaller fragments and to limit the maximum size of the larger pieces to that which would render such infilling practicable. In other words, the accepted theory of the highest efficiency as resulting from the use of graded aggregates in concrete should be applicable to paint films. The thickness of the paint film fixes the maximum diameter of the solid particles, and the proper infilling can only be obtained by efficient and sufficient grinding. Now, grinding adds to the cost; moreover, as this attrition proceeds, the cost does not advance in proportion to the reduction in the size of the particles, but a great deal more rapidly.

If the hypothesis be accepted that the durability, which fixes the renewal cost, is proportional to the fineness, which appears to be at least true for oxide paints, there must, of course, be a limit to possible increased life obtainable through increased subdivision. As grinding proceeds the *extra* life of the resulting paint will not be extended in direct proportion to the increased cost, but more slowly. At a certain stage the increased efficiency will be so small, and the added cost so great, that it will be as cheap to repaint the fabric as to pay for so expensive a paint, and this will be the efficiency limit of grinding. It would appear, therefore, only necessary for paint manufacturers to determine the limit by experiment—the data from which could be plotted as interesting curves—and then to let this maximum efficiency form the standard grinding. We venture to think that buyers would not be unduly slow to realise that what they want to pay for is not weight, which involves the heavy millstone of labour cost in direct proportion, but protective efficiency which may be cheap at a handsome extra in first cost.

That great variations in the sizes of paint particles do exist is evident from numerous measurements. Mr. Smith, for example, quotes* samples of white-lead and oxide paints in which the particles varied from 1 to 8 and 1 to 5 diameters respectively. When reflection produces the realisation that the bulk of the particles in the above cases is roughly 1 to 500 and 1 to 120 respectively, it will be evident what a variation in size this really means, though these differences must be looked upon as exceptionally large and as representing very poor grinding.

Another condition which much influences durability is the complete absence of moisture in the paint. Both base and vehicle may be at fault in this matter, and the exclusion of water should be guarded against, not only throughout the preparation of the paint, but after its arrival "on the job." It is advisable, further, to eschew for ironwork paints which contain water even in their constitution, and the existence of such water in white-lead may be an explanation of its non-success for painting metal.

If any doubt exists as to the dryness of the paint it should be applied warmed, which can generally be arranged without unreasonable trouble. Adequate stirring, especially with red-lead and other heavy bases, and restrictions as to thinning are matters which should not require comment here.

Some experts recommend the addition of varnish to paint for metalwork, and if this is made from good resins it will undoubtedly be helpful, but for such purpose the temptation to use rosin and other cheap varnishes is considerable.†

Special Paints and Coverings.

A very large number of patent materials for protecting ironwork, under the name of "Anti-corrosive Paints‡" and similar titles, exist, but it is doubtful, apart from a special class referred to below, if many of them possess any characteristics entitling them to special consideration over well-known and finely-ground, inert and amorphous bases in oil, such as can be made by any manufacturer.

Again, many coatings devoid of solid mineral particles have been employed mostly derived from tar, which should be used with caution, since tar contains acids which may be actively corrosive.

The Truth about Angus Smith's Solution.

This is an excellent preservative for iron, and is so constantly specified by architects and engineers that it merits special description, the more so because we should be almost correct in saying that not only is such specification never carried out, but that hardly anyone who demands it could define his requirements. It has, indeed, become one of those amiable fictions handed down through generations, and it is not without some feeling of regret that we venture to "lay the ghost" of the venerable Doctor. The original specification was lost years ago, and is unknown, but according to Wood‡ the process consists of removing the lighter oils (naphtha) from tar by distillation, adding 6 per cent. of linseed oil, and immersing the iron in the resulting liquid heated to 300 deg. Fahr. for from fifteen to thirty minutes. Obviously, therefore, this treatment is not only impossible for ironwork in position, but would require a special plant for members of an iron structure of any but the smallest dimensions. In the case of water-pipes a covering of this nature is employed and is most effective for fresh clean castings, but we believe that such application to structional iron and steel is a great rarity.

Alkaline Paints.

There are certain bodies which tend to prevent oxidation in iron when real contact between the two exists, and even in the presence of considerable moisture such substances exercise a very powerful preventive action. The subject is too large a one to be fully discussed here, but it may be said that bodies which possess alkaline properties such as lime exhibit this characteristic very strongly. It is for this reason that iron embedded in concrete does not suffer corrosion where in contact with the cement or lime which such material contains. Portland cement when set contains, it should be remembered, a large quantity of free hydrated lime.

The one essential for the successful use of such bodies is that they should really adhere perfectly to the metal. The use of cement wash for treating iron in certain circumstances is well known, but cement to adhere requires proper time in which to set, and as a rule this thin film of wash fails through too rapid setting to make a permanent contact with the metal. When, however, these alkaline paints are made up in oil the adherence may be rendered efficient provided the state of division of the solid ingredient is suitable. Since no oil film can prevent the gradual solution of bodies highly soluble in water or the vaporisation of gaseous bodies in solution, alkalis such as potash, soda, and ammonia are unsuitable for the basis of such paints. The remaining available alkalis are lime and possibly magnesia, the former being the cheaper and also the more powerful. A criticism appeared in these columns some weeks ago of a paint the base of which consists of finely-ground Portland cement or its equivalent in composition—that is, of silicate of lime. The theory of the protective power of this paint may be taken to be that on the slight action of moisture a small quantity of lime is liberated from the silicate in the same manner as when this material is decomposed on setting, and that this alkaline solution thus produced prevents such moisture (if, indeed, not entirely absorbed by the lime thus freed) from initiating oxidation or rusting. Such paint is not likely to have such good adherence to the metal or coherence among its own particles as those formed of the ordinary base; hence it is desirable to lay it as a first coat and then to paint in subsequent coats in ordinary good oils.

It is known that iron with a slight covering of adherent (not flaky) rust may be safely placed in cement concrete. In the same manner alkaline paints may be safely applied to iron in a similar condition without fear of the rust increasing. Hence the labour of cleaning iron for alkaline paints should be considerably less than for those which possess no chemical preventive properties.

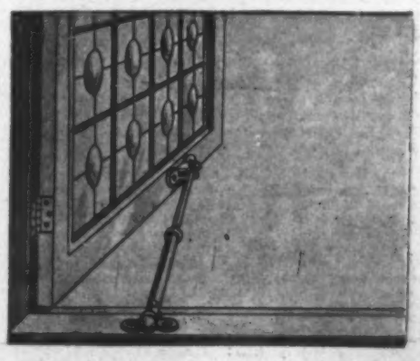
* J. C. Smith. "Manufacture of Paint."

† An article on varnishes appeared in our last issue.

‡ Wood. "Rustless Coatings." 1905.

A SELF-ADJUSTING CASEMENT STAY.

JUDGING by the important positions in which it has been used, the claim of Messrs. Coup, Phillips, & Co., of 13, Clerkenwell-road, London, E.C., for their "Uneeda" patent self-adjusting casement stay would appear to be substantiated. The stay consists of a drawn brass tube, in which is an expanding piston. The adjustment is automatic, and is effected by merely opening the window, the friction of the piston holding the casement in position even in high winds. The stay is made for windows



opening outwards, as well as those opening inwards, and it is made in different sizes to suit both small as well as large casements. Many leading hotels have been furnished with this contrivance, amongst them being Claridge's, the Métropole, St. Ermin's, and the First Avenue in London, and the "Queen's Highcliffe" in Margate, and the Empress Ballroom in Blackpool. The same firm also make a simpler steel self-adjusting stay and the "Uneeda" patent self-locking bolt.

APPLICATIONS UNDER LONDON BUILDING ACTS, 1894 to 1909.

THE Building Acts Committee of the London County Council have consented to the undermentioned applications under the London Building Acts, 1894 to 1909:—

Line of Frontage and Projections.

City of London.—Two balconies at No. 69, King William-street, City (Mr. O. P. Milne).

City of London.—Re-erection of a projecting shop at Nos. 35 and 37, New Bridge-street, City (Mr. F. Legg for Messrs. Spiers & Pond, Ltd.).

Kensington, South.—Bay-windows and balcony at the rear of No. 141, Holland-road, Kensington (Mr. F. White for Mr. C. Kiralfy).

Lewisham.—Porch, bay-windows, and sham half-timber work to proposed house on the western side of Guibal-road, Lee (Mr. A. Lane for Mr. W. H. Turle).

Lewisham.—Bay-windows, porches, hoods, and oriel-windows to twelve houses on the eastern side of Manwood-road, Lewisham (Mr. J. Nicholls).

Norwood.—Bay-windows, porches, oriel-windows, and bargeboards to thirteen houses on the southern side of Baytree-road and fifteen houses on the northern side of Sudbourne-road, Brixton-hill (Messrs. E. Evans & Sons).

Width of Way, Line of Frontage, and Space at Rear.

Hampstead.—Additions at Nos. 3 and 4, Byron-villas, Hampstead Heath (Mr. F. Potter for Dr. A. H. Croucher).

Line of Frontage and Construction.

Rotherhithe.—Extension of a gangway at Butler's Wharf, across the public way of Shad Thames, Rotherhithe (Messrs. G. Potton & Son).

Space at Rear.

Hackney, North.—Building at the corner of Dalston-lane and Kingsland High-street (Messrs. J. Lyons & Co., Ltd.).

Holborn.—Addition at the rear of Nos. 19 and 21, Gower-street, Holborn (Mr. C. Fitzroy Doll for the Duke of Bedford).

St. Pancras, South.—Addition at the rear of Turner's Hotel, Nos. 73-76, Guilford-street, St. Pancras (Mr. J. W. S. Burmester for Mr. J. W. Turner).

Width of Way and Projections.

Marylebone, West.—Block of flats upon the site of Nos. 8-12, Manchester-street, St. Marylebone (Mr. H. J. Colebrooke).

Alteration of Buildings.

Wandsworth.—Alterations and additions at No. 278, Balham High-road, Wandsworth (Mr. J. M. Kennard for Mr. A. G. Allen).

Formation of Streets.

Hampstead.—New street for carriage traffic to lead from Finchley-road to Lymington-road, Hampstead (Messrs. Farebrother, Ellis, & Co. for Sir Spencer P. Maryon-Wilson, Baronet).

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABERYSTWYTH.—Plans have been submitted to the Board of Education for approval of the proposed new infants' school, providing accommodation for 260 children, at a cost of £4,750, by the Monmouthshire E.C.

Aberystwyth.—Plans passed by U.D.C.:—Alterations to Mr. T. W. Powell's café in Pier-street; additions to premises in Queen-street and Eagle-court for Mr. Hartley; addition to the White Hart Tavern, in Market-street, for Messrs. D. Roberts & Sons; and additions to Cartref, Banadl-road, for Mr. Thomas Williams. Plans passed by the R.D.C.:—House at Waunfawr for Mr. T. T. Edwards, and at Ffrwd, Llanrhystyd, for Mr. D. Lewis.

Ayr.—Plans passed:—Roman Catholic Diocese of Galloway, for the extension of the school in Whitletts-road, at an estimated cost of £600; Messrs. D. Wyllie & Co., chemical manufacturers, for the erection of retaining and boundary walls at Newton Esplanade, at a cost of £1,600.

Barnet.—The Herts E.C. have decided to recommend the C.C. to enlarge the Byng-road C.C. School, at a cost of £3,013, to provide additional accommodation for 244 children.

Basingstoke.—It has been resolved by the T.C. to purchase from Lord Bolton 2½ acres of land in Cranbourne-lane for the purpose of erecting fifty cottages.

Batley Carr.—Extensive alterations are about to be carried out at the Working Men's Club. Mr. F. W. Cave is the architect.

Bedford.—Plans passed by R.D.C.:—Pair of cottages at Hunt's Knob, Wootton, for Mr. S. Hutchings; pair of villas at Goldington for Mr. H. Sale; cottage at Willington for Mr. J. Stokes; cottage at Goldington for Mr. J. Abrahams; four cottages at Wootton for Mr. S. Shadwick.

Beverley.—The B.G. have adopted a proposal for altering and adapting Hengate House for a children's home at a cost of £475.

Bexhill.—The T.C. has sanctioned the building of a new isolation hospital at a total cost of £6,420, half of which will only be spent at first.

Bishop's Stortford.—The Hertford Divisional Committee recommend that the Northgate C.C. Schools be enlarged and improved at a cost of £3,694, so that the schools may accommodate 400 children.

Blackburn.—Plans passed:—Addition to workshop, Bennington-street, by Mr. John Shaw; house, 144, Lambeth-street, by Mr. J. W. Livesley; seven houses, Black-a-Moor-road, by Mr. J. Grimshaw; cotton store, Wellington Mill, Bolton-road, by Messrs. W. D. Coddington & Sons; four houses, Grindleton-street, off Downham-street, by Mr. J. Gillibrand; extension to works, Regent-street, by Messrs. Meadowcroft & Son, Ltd.; extension to works, Weir-street, by Mr. H. Shutt; two houses, St. Francis-road and Preston Old-road, by Mr. H. Southworth; and timber storage shed, Moss-street, by the British Northrop Loom Company, Ltd.

Blackpool.—Plans passed by T.C.:—Mr. G. Hodgson, sixteen houses, Lichfield-road; Mr. W. Chadwick, two houses, King George-avenue; Mr. W. Chadwick, two houses, King George-avenue; Mr. E. Masurk, two houses, Rathlyn-avenue; Mr. M. J. Marsden, two houses, Gloucester-avenue; Mr. and Mrs. Knight, house, Argyll-road; Mr. R. Dickinson, six semi-detached houses, Argyll-road; Mr. John Whiteside, seven houses, Read's-avenue; Mr. H. Thompson, two houses and garage, corner of Leicester-road and back road; Mr. J. Midgley, two houses, Watson's-lane; Mr. W. Coop, four houses, Kensington-road; Mr. H. G. Parker, two houses, Hazelgrove; Mr. Fred Ayre, two houses, Hampton-road; Mrs. C. Crowther and Mr. H. Turner, two houses, Longton-road; Mr. W. Bracewell, house and garage, Sherbourne-road; Mr. T. Fenton, four houses, Broadway; Messrs Palmer & Thompson, four houses, Manor-road; Mr. N. J. Lewis, two semi-detached houses, Argyll-road; Mr. Charles Wilson, two houses, Chesterfield-road; Mr. W. Tinker, house, Westminster-road; Mr. Fredk. Horrell, two houses, Ripon-road and Kensington-road; Mr. J. Harison, two houses, Harley-road; Mr. J. Gott, additions to premises, 27, Claremont-avenue; Blackpool Corporation, converting house into branch reading-room, 102, Highfield-road; Miss A. Greenwood, alterations and additions, 19 and 20, Wellington-terrace; Mr. E. D. Dennis, additions and alterations to premises, Hornby-road; Mr. J. A. Nuttall, alterations and additions to premises, Raikes-road; Mr. M. J. Mareden, garage and outbuildings, Third-avenue; Mr. R. Ward, alterations and additions, 148, Central-drive; Mr. G. Morris, alterations and additions, corner of Gainsboro'-road and Ripon-road; Mrs. H. Laycock, alterations to house and shop, 16, Clifton-street; Mr. R. Sidecottom, alterations, 84, Talbot-road; Mr. R. Parkinson, alterations, 54, Raikes-road; Mr. T. Judson, garage, back Breck-road; Mr. R. Brown, stables, rear of Ashburton-road; Mr. John Lees, additions to house, 111, Whitegate-drive; Messrs. Lockhart & Foulds, two houses, St. Stephen's-avenue; Mr. H. N. Rose, store-room, Whitegate-drive; Mr. H. Samuel, alterations and additions, corner of Bank Hey-street and Church-street; Mr J. E. Scholfield, alterations, 111, New-road.

Blackwell.—The R.D.C. are to apply to the L.G.B. for a loan to carry out a housing scheme at Shirebrook.

Blyth.—A L.G.B. inquiry has been held into application of the U.D.C. for sanction to borrow £2,350 for the erection of new buildings in the Council yard and for depôts at Newsham and Kitty Brewster, and £400 for the erection of a convenience in Union-street.

Bognor.—L.G.B. inquiries have been held into the proposals of the U.D.C. to spend £638 for the provision of an underground sanitary convenience on the eastern promenade, and to borrow £490 for the purchase of additional land and for the erection of two more working-class dwellings in Ockley-road.

Bolton.—Plans passed:—Messrs. H. Ashworth & Son, shippon at Bank Top Farm; Mr. J. Brooks, motor-shed in Blackburn-road; Mr. J. T. Hamilton, two houses in Westcliffe-road; Mr. W. E. Yates, houses in Thorne-road; Mr. F. H. Cartwright, twenty-one houses in Longfellow-avenue, Hulton; Mr. T. Woods, four houses in Welbeck-road, Heaton; Mr. P. Haworth, dwelling-house in Markland Hill-lane; Mr. Mayhall, garage in Albert-road; Messrs. Leigh Brothers, house and shop in Chorley Old-road, houses in Abbotsford-road, streets on Shipton Estate, and nineteen houses in Devonshire-road; Mr. R. J. Berry, house in Chorley Old-road; Mr. W. Bradley, two houses in Bentley-street; Messrs. Cannons, Ltd., additional story to mill in Jackson-street; Mr. R. G. Jones, eleven houses in Melbourne-road; Messrs. H. Whitehurst & Son, additions to warehouse in Crown-street; Mr. T. E. Smith, streets off Deane-road; Mr. G. Ryley, new streets at Mount St. Joseph's-road; Mr. W. J. Lomax, streets off Swan-lane; Mr. T. Blackley, eighteen houses off Swan-lane; Mr. J. Simpson, recreation-room in Pilkington-street; Messrs. J. Johnson, Hodgkinson, & Pearson, for lavatories, Lostock; Messrs. Ritson & Cole, two houses in Tempest-road; Mr. M. Higson, six houses in Hulton-lane, and seventeen houses in the same thoroughfare; and Mr. J. Middlehurst, three houses in Lever Edge-lane.

Boston.—The trustees of the Wesleyan Centenary Chapel make the grave announcement that the towers of the building will have to be taken down and rebuilt, owing to defective foundations. The work proposed will entail a heavy expenditure.

Brackley.—The T.C. have decided that an application be made to the L.G.B. for sanction to borrow £2,200, made up as follows, for the purpose of acquiring land and providing twelve houses for the working classes:—For land, £25; buildings, £2,015; sewers and water supply, £60; street works, £50; fencing, £50—total, £2,200.

Cardiff.—An interesting offer has been made to the Housing Committee for the erection of workmen's dwellings on the site near Portmanmoor-road, Splott, which has been offered the Committee by the Bute Estate on lease for £20 per acre per annum. The offer was made by Mr. W. H. C. Caple, architect, who asked if the Committee would accept 100 or more houses, built in accordance with the by-laws, at a cost of £135 each. The cost would include drains and fences and the architect's fees, but the Corporation would have to lay out the streets and construct the sewers. It was decided to ask Mr. Caple if he would be prepared to build the houses according to the scheme prepared by the Engineer, in which the houses would be built in blocks with an open space.

Chard.—The R.D.C. have received four plans of cottages to be erected at Combe St. Nicholas under the Housing Act, and they have been sent to the P.C. for their consideration.

Cheshunt.—The Board of Education having signified their approval of the provision of a girls' secondary school at Cheshunt, the Herts E.C. have decided to renew the negotiations for the purchase of a site in Windmill-lane—about 6 acres—for £1,567. The buildings, it is estimated, will cost £4,800.

Chester-le-Street.—Plans passed for the reconstruction of Mr. C. Groves' premises in Front-street.

Chorley.—A L.G.B. inquiry has been held into an application by the T.C. for sanction to borrow £3,100 for the purchase of property in Market-street for purposes of street improvement, and sums amounting to £29,783 for purposes of their gas undertaking.

Colchester.—The T.C. have approved the erection of a farm bailiff's house at Severall's Asylum, at a cost of £402 12s. 3d.

Coventry.—Plans passed by T.C.:—House, Melbourne-road, for Mr. W. Bromley; extensions to foundry, Northey-road, for the Sterling Metals, Ltd.; five houses, Highland-road, for Mr. A. J. Crump; two houses, Sir Thomas White's-road, for Mr. B. S. Chinn; seven houses, Latham-road, for Mr. E. Jordan; house, Bryn-road, for Mr. H. Hiorns; five houses and house with shop, Swan-lane, for Mr. A. Jeffs; extensions to factory, Mile-lane, for Messrs. Hollick & Pratt; three streets, Foleshill-road, for Mr. E. Broad; extensions, Whitefriars'-lane, for the Coventry Swaging Company; forty houses, Enfield-road, for Mr. Wm. Crane; premises, rear of Friars'-road, for Mr. W. I. Iliffe; two houses, Clay-lane, for Messrs. Yousell & Brooks; additions, Sherbourne House West, for the Committee of the Young Women's Christian Association; six houses, Hearsall-lane, for Messrs. Patrick & Barratt; enamel store and cycle shed, Foleshill-road, for the Challenge Cycle Company, Ltd.; two houses, Bray's-lane, for Messrs. Jervis Bros.; three houses, Holmfield-road, for Mr. E. J. Twigg, sen.; two houses, Queen Mary's-road, for Mr. W. Smith; eight houses, Kirby-road, for Mr. T. Seal; five houses, Queen Mary's-road, for Mr. James Isaac; six houses, St. Agatha-road, and three houses, St. Osburg's-road, for Mr. Dalton; two houses, Beaconsfield-road, for Messrs. Jervis Bros.; eight houses, Churchill-avenue, for Mr. J. Whetstone; nine houses, Clay-lane, for Mr. H. J. Emery; four houses, Broadway, for Mr. W. H. Penn; six houses, Welland-road, for Mr. W. Roy; thirty-one houses, Churchill-avenue, for Mr. E. Stidworthy; house, Styvechale-avenue, for Mr E. Harris.

Cowes.—The Board of Trade have given their approval to the Harbour Commissioners for the construction of a breakwater, 900 ft. long, across Shrape Bank, at East Cowes. The borrowing powers are confined to £8,000. Other expenditure must come out of revenue.

Croydon.—Sir Frederick T. Edridge has offered to pay the cost of an elaborate redecoration of the Council-chamber. This is equivalent to a gift of at least £1,000. The scheme adopted is that drawn up by Mr. Charles Henman, the architect of the Town Hall. Plans passed:—Mr. J. S. Keen, six houses, Ingram-road; Mr. E. H. Brown, shop on forecourt, 23, Woodside-green; Norbury Garden Village, Ltd., two houses, Pollards-hill West and South Messrs. Scratchley Bros., three houses, Buller-road; Messrs. E. Evans & Sons, six houses, Whitehorse-lane; Mr. W. Knight, four houses, Woodside-road; Mr. T. G. Crump, sixteen houses, Compton-road; Mr. T. G. Crump, seventy houses, Wydehurst-road; Mr. T. G. Crump, one house, Fryston-avenue; Messrs. W. Aston & Co., one house, Park-road, South Norwood; Mr. W. Rine, five shops and houses, Lower Addiscombe-road; Mr. P. Richardson, fourteen houses, Sefton-road; Mr. W. A. Brown, two houses, Pollards-hill North; Mr. T. G. Crump, twelve houses, Ashburton-avenue; Messrs. Higgins & Thomerson, twelve houses, Teevan-road.

Darlington.—The North-Eastern Railway Company has purchased from the Backhouse family the Faverdale estate, which covers a considerable area in close proximity to the Stooperdale locomotive works at Darlington. The intention of

* See also our list of Competitions, Contracts, etc., on page 454.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur:—

—	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Newcastle	10	10	10	10	10	10	9	6½	6½	6½
Sunderland	10	10	10	10	9½	9	9	6½	6½	7
Darlington	9	9½	9	9½	9	7½	6½	6½	6½	6½
Stockton-on-Tees	9	10	9½	10	10	9½	8½	7	7	7½
Bradford	10	10	9	9½	9½	10	8½	7	7	7
Halifax	9½	9	8½	8½	8½	9	8½	6½	6½	6½
Hull	9½	9½	9½	9½	9½	9½	8½	7	7	7
Leeds	10	10	9½	9½	9	9½	8	7	7	7
Sheffield	10	9½	9	9½	9½	9½	8½	6½	6½	6½
York	9	9½	8½	9½	9½	8½	7½	6½	6½	6½
London	11½	11½	11½	11½	—	1s.	9	8	8	8
Brighton	8–9	8	8	—	—	—	—	—	—	—
Portsmouth	9	9	9	9	—	8	7½	6½	6½	6½
Southampton	8½	9½	9½	8	—	9½	8½	6½	6½	6½
Maidstone	9	9	9	9	9	9	7½	6	6	6
Bristol	9½	9½	9½	9½	—	9½	9	6½	6½	6½
Bath	9	9	9	9	—	9	7½	6	6	6
Plymouth	7½	7½	8	8	7½	7½	7	5–5½	5–5½	5–5½
Cheltenham	8½	8½	8½	8½	—	8½	7½	5½	5½	5½
Exeter	8	8	7½	7½	7½	7½	6½	5	5	5
Gloucester	7½	8½	8½	7½	7½	8½	7½	5½	5½	5½
Hereford	7½	8	7½	8	7½	7	6½	5	5	5
Stroud	7½	7½	7½	7½	7½	7½	7	5	5	5
Blackburn	10	10	9½	9	9½	9½	9½	6½	7	7
Bolton	10	10½	10	10½	9	10	9	—	—	—
Liverpool	11	11	11	10	10	10½	9½	6½	6½	6½
Manchester	10	10½	10½	11	9	10	9½	6½	6½	7½
Oldham	10	10½	10	9½	9	10	9½	6	7	7½
Preston	9½	10	9½	9	8½	9	8½	5½	6	6
Birmingham	10	10	10	10½	9	10½	9	7	7	7
Derby	9½	9½	9	9	9	9	8	6	6	6½
Leicester	9½	9½	9½	10½	9	9½	9	7	7	7½
Nottingham	10	9½	10	10½	9	9½	9	7	7	7½
Norwich	8	8	8	8	8	8	6½	5	5	5
Cambridge	9	8½	8½	9	8	9	7	5½	5½	5½
Oxford	9	8	8½	8½	8	8½	7	6	6	6
Southend	9	9	9	9	Piecework	9	7	6	6	6
St. Albans	9	9	9	10	8½	9	8	6	6	6
Gravs	—	10	10	—	—	—	8½	7	7	7
Cardiff	9½	9½	9½	9½	9½	9½	8½	6½	6½	6½
Swansea	9	9	9	9	8½	9	8½	6	6	6
Newport	9	9	9	9	8½	8½	8½	6	6	6
Chatham	8	9	8½	9	9	8½	7	5½	5½	5½
Birkenhead	11	11	11	10½	10	10	9½	6½	6½	6½

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

the railway company is to erect a smithy, a forge, and machine shop for the purpose of constructing waggon ironwork.

Derby.—Plans for two branch libraries have been adopted by the T.C., together with others, for the extension of the present Free Library buildings in the Wardwick in order to house the Bemrose and Devonshire collections of books The Carnegie Trust is giving £10,000.

Doncaster.—Plans passed by the T.C.:—Rebuilding of the Coach and Horses public-house, Scot-lane, for Mr. F. W. Johnson; picture-house, No. 7, High-street, for the Picture House (Doncaster), Ltd.

Dudley.—The Public Works Committee are recommending that a municipal building scheme, involving a cost of £40,000, should be proceeded with at once. The scheme includes Town Hall, municipal offices, police accommodation, an art gallery, and museum.

Dulwich.—James Allen's Girls' School is to be improved at a cost of £3,000.

Durham.—Plans passed by T.C:—Councillor Shepherd, two houses in Gilesgate; Mr. Todd, villa in Field House-lane; the United Automobile Services, Ltd., extensions to garage at Shaw Wood; Durham Gas Company, three cottages at Framwellgate; Mrs. Blackett, conversion of four houses into five at Claypath.

Edinburgh.—The Dean of Guild Court have granted the following warrants:—Corporation of Edinburgh, to widen bridge at Milton-road, Duddingston; Mr. E. J. Cuthbertson, corridor and lounge at 112, Churchill; Mr. E. Scott Carmichael, alterations at 42, Palmerston-place; Scottish Motor Traction Company, Ltd., additions at 29, Fountainbridge.

Elland.—The U.D.C. have approved plans for the erection of a proposed new mill in Thomas-street, for an additional story to Norton Mills, and a proposed presbytery for the Rev. Father Patrick Kealy.

Evesham.—Sir C. Swinfen Eady has offered a site of 8 acres at Harrington for the erection of workmen's cottages, which the Evesham R.D.C. has accepted.

Exmouth.—The U.D.C. are considering the question of erecting municipal offices.

Felixstowe.—The sanction of the L.G.B has been received to the T.C. borrowing £460 for the erection of baths in Cape-lane, Walton.

Folkestone.—A new shelter, at a cost of £800, is to be constructed in the cliff of the Folkestone Leas to the west of the lift.

Fraserburgh.—Plans of alterations and extensions at the Broad-street site of the Fraserburgh Gasworks have been approved by the Streets Committee of the T.C.

Fylde.—Plans passed by R.D.C.:—Two cottages, Elswick, Miss E. F. King; outbuildings, School-lane, Marton, Mr. D. Miller; additions to school at Hardhorn, Governors of Baines's Grammar School.

Golcar.—Plans approved of filter beds at Scarbottom Mills for Messrs. John Lockwood & Sons, Ltd.; eight houses at Rufford-street for Mr. Wm. Beaumont; furniture store-room at Savile-street for Messrs. Joseph Hanson & Son; four houses in Swallow-lane for Messrs. Garside; and additions to Heath House Mills for Messrs. T. W. Thorpe, Ltd.

Golder's Green.—Designs for a new church in the London Diocesan Home Mission district of St. Alban, Golder's Green, have been approved. The building is to cost between £8,000 and £8,500, with accommodation for 750 people. The campanile, about 100 ft. high, will cost about £1,500. It is also proposed to build a crypt.

Greenock.—The Dean of Guild Court have passed plans for the erection of a gasholder at Inchgreen by Greenock Corporation; and those presented by the Greenock Provident Building Society for three four-story tenements at the corner of Lyle-street and Antigua-street.

Higham Ferrers.—A L.G.B. inquiry has been held into an application by the T.C. to borrow £1,650 for sewage-disposal works.

Horsham.—The Justices have passed plans for the rebuilding of the King's Head public-house

Irthlingborough.—Plans passed for a house on Finedon-road for Mr. Vorse, and a liquor-house for the Chrome Tannery Works.

Lancaster.—Plans for picture-house and café in Market-street for Mr J. Pickup approved.

Leyland.—Plans passed by U.D.C.:—Fifteen houses in Thurston-road for Messrs. Pyke Bros.; four dwelling-houses in Hastings-road for Messrs. Cox & Turner; second-floor story office in Northcote-street for the Leyland Motors, Ltd.; road leading from Turpin Green-lane by Mr. Gregson; two new houses in Stanley-street for Mr. Gregson.

Llanharan.—Representatives of the new company, who have acquired the Meiros and Cwm Cuke Collieries, Llanharan, have decided to extend the railway siding to the pit's mouth, and to sink an additional shaft. A site has been selected for building operations, it being estimated that 100 houses will be required shortly.

Lymington.—The L.G.B. have held an inquiry relative to the application of the R.D.C. to borrow £14,772 for the purpose of sewerage and sewage-disposal works at Brockenhurst.

Maidenhead.—Plans passed by T.C.:—New lavatory at and extension of Boyne-hill laundry for Mr E. Harper; detached dwelling-house, College-avenue, for Mr. W. Ethelbert Henry.

Manchester.—The Sanitary Committee having been denied the authority to obtain competitive plans for fifty semi-detached cottages, suitable for erection on the Blackley estate, have resolved that designs be invited by public advertisement from architects for two pairs of semi-detached cottages, to be constructed of either brickwork or concrete, to let at a rental of 5s. 6d. and 7s. 6d. per week respectively, suitable for erection on the Blackley estate, and that prizes be offered as follows, viz., £50 for the best designs and £25 for the second-best designs, each design to be accompanied by a specification and estimate of the cost, and the prizes to be withheld unless a *bond-fide* tender can be obtained for the carrying out of the work at a cost within 10 per cent. of the estimate of the architect.

Mansfield Woodhouse.—Plans approved:—Four pairs of semi-detached dwelling-houses and premises, for Mr. Alfred Munks, in St. Edmund's-avenue; pair of semi-detached dwelling-houses, Mr. Shrive, Crow Hill-lane; pair of semi-detached dwelling-houses, Mr. F. H. Cutts, Mansfield-road.

Manstone.—The Thanet R.D.C. are seeking to acquire land at Manstone for the purpose of building workmen's cottages.

Margate.—The Corporation have approved of a scheme for the erection of a new elementary school on the most modern lines in the Garlinge district, at a cost of about £12,000.

Meriden.—Plans passed by the R.D.C.:—Two houses for Mr. John Mowe, Marston Green; additions to sanitary offices, Clock Inn, Bickenhill, for Showell's Brewery.

Midhurst.—The scheme prepared by the Surveyor of the U.D.C. for the erection of two pairs of cottages at Milland has been approved, and application will be made to the L.G.B. for sanction to borrow £40 for the purchase of land, £725 for building and contingencies, and £15 for fencing.

Newcastle-on-Tyne.—The New Town Hall Committee will submit to the Corporation a report recommending Eldon-square site on which to build a new Town Hall and municipal buildings; and, further, that the City Council be requested to grant £500 for plans showing the best design for erecting such buildings. The T.C. have decided to spend £200 on prizes for competitive plans for the development of the Singleton House site. The T.C. have agreed to incur a capital expenditure of £30,000 for extensions to the Rutherford Technical College, and a further expenditure of £4,000 for the construction of an assembly hall at the girls' secondary school in Rye-hill.

Newcastle-under-Lyme.—Plans submitted by the Borough Surveyor for the erection of seventeen workmen's dwellings on Corporation land in Castle Hill-road and Stanier-street have been approved by the T.C. The Town Clerk has submitted the plans of the proposed Free Library, which had been forwarded by Messrs. Briggs, Wolstenholme, together with an estimate of the cost of erection and furnishing. The plans were approved, and the Town Clerk instructed to forward them to Mr. A. Carnegie for his approval.

Nuneaton.—Plans passed:—Addition to building, rear of King's Arms, Abbey-street, for Mr. W. F. Adams; Art Gallery and Museum, Riversley Park, for Mr. E. F. Melly; bakery, etc., Abbey-street, for Mr. W. J. Yoxall; five lock-up shops and conversion of house into shop, Queen's-road and York-street, for Mr. J. Moore; two houses, Princes-avenue, for Mr. W. E. Mayor; alterations to premises and lock-up shop, 10, Abbey-street, for Mr. S. Buckler; clubroom and caretaker's house, Galley Common, for the Haunchwood Collieries, Ltd.; five houses and shops, Queen's-road, for Messrs. Dixon & Taylor.

Peebles.—The Dean of Guild Court has granted a warrant to Mr. Walter Kidd, Motherwell, to erect a building in vacant ground in the Briggate, to be used as a picture-house. The new building is estimated to cost about £3,000.

Pelton.—A L.G.B. inquiry has been held into the application of the Pelton Joint Burial Board to borrow £2,900 for the extension of the cemetery and erection of a chapel.

Pembroke (Ireland).—The U.D.C. has arranged a loan of £81,418 with the Commissioners of Public Works for their housing scheme.

Pontymister.—Preliminary sketch plans of new Council school, a two-story building, with accommodation for 300 girls on the ground floor and 300 boys on the first floor, at a cost of £7,750, have been submitted to the Board of Education by the Monmouthshire E.C.

Prestatyn.—Plans approved by U.D.C.:—Garage in Sandy-lane for Mr. C. Herbert Jones; four detached villas in First-avenue for Prestatyn Estate Trustees; workshop at the rear of Sheffield House, High-street, for Mr. T. Parry Williams; semi-detached villas in Clwyd-avenue for Messrs. R. & W. Butler.

Reading.—Plans have been deposited for the proposed jam factory for the Co-operative Wholesale Society. The Architect to the Society, Mr. F. E. L. Harris, states that the probable cost of the building only will be about £55,000.

Rhyl.—The L.G.B. has held an inquiry into the Council's application for power to borrow an additional £4,269 for the purposes of dredging operations in connection with the sewerage works. No opposition was offered.

Rotherham.—The T.C. have decided to purchase the West Riding Court-house and St. George's Hall for the widening of College-square and Effingham-street. The scheme involves the removal of the Cattle Market to the new site in Millgate. A new Court-house for the West Riding Police Authority is to be erected by the West Riding Joint Committee on the site of the present Cattle Market in the Crofts.

St. Germans.—The R.D.C have decided to made application to the L.G.B. for sanction to borrow £1,500 for a water supply scheme.

Scarborough.—Special efforts are being made to commence the building of the new permanent St. Columba's Church this year. The estimated cost is £7,000, and towards this £3,571 has been raised. Mr. Temple Moore, the architect, has designed a dignified and beautiful church for the accommodation of 600 people.

Selby.—It is proposed to enlarge the Cottage Hospital, for which land belonging to the bowling green has been secured.

Sunderland.—The plans for the conversion of the Havelock business premises, Fawcett-street, into a picture-house, have been submitted to the Building Committee by the Associated Provincial Picture House Company, Ltd

Tilbury.—The U.D.C. have agreed to make application to the L.G.B. for sanction to raise loans for £83,500 for the acquisition of land and erection of 234 dwelling-houses in the district, £2,695 for the construction of surface water and soil sewers, and £840 for the channelling of various streets.

Uxbridge.—Plans passed by R.D.C.—Additions to a house and shop at Cowley, Mr. E. A. White; house at Watt's Common, Harefield, Messrs. C. Brown & Sons; compo factory at Bells United Asbestos Works, Harefield; house at Station-road, West Drayton, for Mr. A. Whitby.

Wakefield.—The T.C. have applied to the L.G.B. for permission to borrow £17,813 for the purpose of sewerage extension works in the Sandal Ward.

Wantage.—The R.D.C. are applying to the L.G.B. for sanction to borrow £1,500 to carry out a drainage scheme for Charlton.

Warrington.—Several important alterations and extensions are shortly to be made at the works of Messrs. Joseph Crosfield & Sons, Ltd.

Westminster.—The General Electric Company, Ltd., are raising capital to provide, amongst other things, for the erection of a building in Kingsway to accommodate the whole of the Company's office and warehouse staff in London, for which purpose a site containing 25,000 super. ft. has been acquired. The building, with its proper equipment, is expected to cost about £150,000.

Wick.—The T.C. have decided to offer a premium of £10 for the best plan for workmen's dwellings.

WAGES IN THE BUILDING TRADE.

Aberdare.—The appeal of the operative plasterers of this district for an advance in wages of ½d. per hour (9d. to 9½d.) was heard at a meeting of the National Joint Committee of Appeal held in London on April 3. After hearing the evidence of the witnesses from both parties the Committee decided that an advance of ½d. per hour be granted as from January 1, 1915, and that it remain in force for two years from that date.

Coventry.—The efforts of the local Building Industries Federation to induce the Master Builders' Association to recognise it have failed. At a meeting of the employers a resolution was passed to the effect that, the time of notice for alterations of rules having elapsed and no settlement having been accepted by the men, the employers think it best to resort to the original conditions, and to notify that they are willing for all trades to continue working under the existing rules.

Driffield.—The carpenters and joiners in this district have given notice of a demand for an increase in wages of 1d. per hour.

Dublin.—The stonecutters have been granted an increase in wages of 1d. per hour (8d. to 9d.), and a reduction in the working hours from fifty-four to fifty per week.

London.—The London Master Builders' Association has made a definite offer for a settlement of the present dispute in the London building trade. On March 17 a conference, convened by the National Board of Conciliation for the Building Trades, made the following recommendation to the parties concerned:—"(1) That, in the opinion of this augmented Board, the entering into a direct agreement between the London Master Builders' Association and the head executives of the various trade unions to the effect that all duly signed rules between the London Master Builders' Association and the local branches of unions shall be rigidly enforced, and the head executives of the various trade unions concerned undertaking under agreement that unless such rules are observed the head executives will not countenance any strike, and will suspend all benefits and will countersign all rules agreed upon, then such undertaking shall be deemed a sufficient guarantee for their observance. (2) It is further suggested that London come under the conciliation scheme." The men accepted the recommendation of the National Board in every particular. At a special general meeting of the London Master Builders' Association, held at the Holborn Restaurant on April 6, the following resolution was carried:—"That the National Board of Conciliation be informed that, whilst this Association remains of the opinion that a monetary penalty affords the most satisfactory guarantee for the due observance of working rule agreements, the Association is willing that the principle of their resolution (Clause 1) should be put to the test as a substitute for such monetary guarantee, subject to the following conditions, viz.:—(1) The reinstatement of the working rule agreements which had been so recently entered into, and subject to their remaining in force for a fixed period of four years, and the bringing into conformity with such working rule agreements any rules of the operatives' unions which may be in conflict therewith. (2) The infliction of an adequate monetary penalty by the executive on any member of an operatives' union who may have committed any breach of the agreed working rules and the dismissal from office of any official who may have incited or condoned any such breach, and the peaceful working by members of the operatives' unions on their returning to work with all workmen who may then be engaged or who may have been employed during a trade dispute. (3) That there shall be no ticket inspection in any shop or upon any job, and no blacklisting of any member of the L.M.B.A. or any Association affiliated thereto. Subject to the acceptance of the foregoing proposals the Council of the L.M.B.A. will take steps to amend its rules to provide for the infliction of a monetary penalty upon any of its members who may commit any breach of the working rule agreements." Since the dispute began, ten weeks ago, 30,000 to 35,000 men have been idle, and the resulting loss in wages is estimated at about £500,000. The London District Branch of the Electrical Trades Union have been in negotiation with the London Electrical Masters' Association for improved conditions. The men demand an increase in wages of 1½d. per hour, a reduction in the working hours from fifty-three to fifty per week, and other concessions. The employers have offered an advance of 1d. per hour, which the men refuse to accept. To enforce its demands the Electrical Trades Union declared a strike, to take effect on Wednesday morning, April 1. The men claim that nearly 1,000 struck, but from inquiries made this estimate appears to be exaggerated. Inquiries were made of eighteen of the chief wiring firms in London, with the following result:—Eleven firms report "not affected" or "no men on strike," the remaining seven firms have 237 men working out of 421 previous to the strike.

Tyne and Blyth District (Newcastle, North Shields, South Shields, and Blyth).—The appeal of the operative plasterers of this district was heard by the National Joint Committee of Appeal at its meeting held in London on April 3. The men demanded an increase in wages of ½d. per hour (10d. to 10½d.), and an alteration of local Rule 5, to operate as from May 1, 1914. Local Rule 5 reads as follows:—"That overtime be worked at the request of the employer, when time and a quarter shall be paid for the first two hours, and time and a half afterwards. Time and a half shall be paid for Saturday afternoon. All time lost by employees to be made up before overtime rates start, each day standing by itself. Inclement weather and time lost through the fault of employers shall not be considered as affecting lost time. Systematic overtime shall not be worked. Time and a quarter shall be paid for New Year's Day, Easter Monday, and Race Wednesday and Thursday, and double time for Sundays and Christmas Days." The men's notice of alteration to the rule was as follows:—"That all overtime shall be paid for at the rate of time and a half. All time lost by employees to be made up before overtime rates start, each day standing by itself. (Then continue the rule as at present to the end.)" After hearing the evidence of the witnesses representing both parties, the Committee decided to advance the wages ½d. per hour as from January 1, 1915, the overtime rule to remain as before.

GENERAL BUILDING NEWS.

HOTEL, TOWER-HILL, E.C.

The ancient "Tiger" public-house, Tower-hill, E.C., is being rebuilt from the designs of Messrs. Lovegrove & Papworth. The new building has been designed in sympathy with the age of the original building, which, though refronted in early Georgian times, was claimed as one of the many inns visited by Queen Elizabeth. The general contractors are Messrs. Kirk & Kirk, Esher-street, Westminster, and the constructional steelwork is by the Aston Construction Company, Eagle Wharf-road, Hoxton, N. The steel casements are by the Crittall Manufacturing Company, Ltd., Finsbury-square, E.C.; the lifts are by Messrs. Aldous & Campbell, Lower Bland-street, S.E.; the sanitary goods and stoves are by the Albion Iron Company, Ltd., Upper Thames-street, E.C.; the wrought-ironwork is by the Albany Forge, Ltd., Goldhawk-road, Hammersmith; and the electric wiring is by Messrs. Tyler & Freeman, New Bridge-street, E.C.

CINEMA, PADDINGTON, W.

A picture palace has just been completed in Great Western-road, Westbourne Park, W. The architects were Messrs. Deakin & Cameron, Devonshire-square, E.C.

GALLERIES, ETC., DUKE-STREET, ST. JAMES'S.

A building is in course of erection in Duke-street, St. James's, S.W. It will consist of an art gallery and shop on the ground floor and residential chambers over. The architects are Messrs. Withers & Meredith, FF.R.I.B.A., Cannon-street, E.C., and the general contractors are Messrs. Peppiatt & Cooper, Gwydir-chambers, High Holborn, W.C. The ferro-concrete work is by the Indented Bar and Concrete Engineering Company, Ltd., Queen Anne's-chambers, Westminster, and the steelwork by Messrs. Field, Mallet, & Co., Ltd., St. Dunstan's-hill, E.C. The lifts will be by Messrs. R. Waygood & Co., Ltd., Falmouth-road, S.E.

FACTORY, WILLESDEN.

A factory is in course of erection at Park Royal, Willesden, from the design of Mr. W. James Pamphilon, Finsbury-pavement, E.C. The general contractors are Messrs. Walter Jones & Sons, Old Queen-street, Westminster.

TRADE NEWS.

The Cherry Tree Machine Company, Ltd., of Blackburn, have received instructions to supply the new laundry plant required for the Tarvin Union Workhouse.

Under the direction of Mr. Charles W. Best, M.Inst.C.E., County Surveyor, Brecon, Boyle's latest patent "air-pump" ventilator has been applied to Ystradgynlais Police-station.

The new picture theatre, Newton Heath, Manchester, is being ventilated by means of Shorland's exhaust roof ventilators, electric fans, and special inlet ventilators supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

THE LATE MR. J. H. TROLLOPE.

Mr. Joseph Harvey Trollope, of Queenswood, Beddington, Surrey, retired builder, who died on February 10, aged eighty-five years, formerly a partner of the firm of Messrs. George Trollope & Sons, of Westminster, builders and contractors, has left estate whereof the gross personalty has been sworn at £140,672 7s. 10d. Mr. Trollope was the fourth son of George Trollope, and, with his two older brothers, Robert and George, entered into partnership with his father; he retired from the business twenty-three years ago.

MOTOR TRACTION.

We have received a copy of the fifth special "Progress and Empire" issue of *Motor Traction*. This annual contains every evidence of the activity which exists in the manufacture and adoption of motor traction vehicles for all purposes. It also contains a directory of all those firms which are actively engaged in this important industry, and the issue should be perused with interest by all those who are engaged in the running and maintenance of business motor vehicles or are contemplating this form of transport.

STOCKPORT LIBRARY.

We are informed by Messrs. Stuart's Granolithic Company, Ltd., that the central staircase at this library, including steps, landings, balusters, handrail, and newel, was carried out by them in artificial stone, the steps having a carborundum finish. The building was illustrated in our last issue.

PARLIAMENTARY NOTES.

Building Materials.

In the House of Commons Mr. Snowden asked the Prime Minister if, in view of the fact that builders and housing reformers complain that the supply of building material was controlled by a trust which raised prices last year by 20 per cent., which was equal to the price of the land on which houses were built, he would make provision in the Government's Housing Bill enabling public authorities to manufacture building materials and to supply them to private builders.

Mr. Herbert Lewis said the Prime Minister would give the matter consideration, but he had so far received no request from any public authority to be furnished with such powers.

South Kensington Museum.

In reply to a question by Capt. Murray, Mr. Wedgwood Benn stated that a new scheme was being prepared for the erection of the new spirit museum as part of the western extension of the South Kensington Museum. The original proposal had been abandoned.

NOTICES.

Tel., 6112 Gerrard. Telegrams, "The Builder, London."

CHARGES FOR ADVERTISEMENTS.

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Advertisements for the current week's issue are received up to ONE p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after TWELVE NOON on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publishers cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommend that of the latter COPIES ONLY should be sent.

ADVERTISERS in "THE BUILDER" may have Replies addressed to the Office, 4, Catherine Street, Aldwych, W.C., free of charge. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

N.B.—The Reply Boxes are not intended for trade lists, circulars, and the like; should these be received, they cannot (if applied) be forwarded.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES ninepence EACH. By post (carefully packed), 1s.

CRACK MICROMETERS.

NATIONAL interest has of late been aroused in the problem of the development of the cracks in the foundations of St. Paul's Cathedral. The importance of ascertaining whether the movement which caused a fissure is still taking place has become greatly emphasised not only to those in charge of St. Paul's, but also to all responsible for buildings, ancient and modern. A thorough investigation of the development of the cracks in the Cathedral is being made by means of the crack micrometers described in this article.

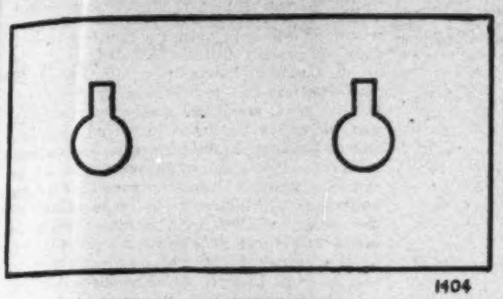

Fig. 1. Half Full Size.

The usual method of measuring the movements is to place across the crack a fillet of cement or plaster of Paris, or of a mixture of the two. As the ends of this fillet adhere firmly to the wall a considerable relative movement of the building on the two sides of the crack will cause the fillet to break and so prove the movement to be still taking place. An extremely fine crack, however, may appear in the cement, caused by the shrinking of the cement as it crosses the crack in the wall, and such a crack proves nothing. But if the tell-tale does not crack it proves that the amount of movement is inappreciable. In any case the cement tell-tale does not show the amount of movement or in what direction it takes place. It also seems probable that there is movement sometimes in one direction and sometimes in another, due to changes of temperature in different parts of the building, and it may be important to measure these movements and to know their direction.

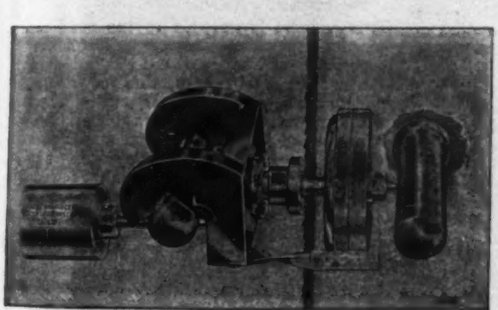

Fig. 3. Opening Micrometer Marked "A." Half Full Size.

It is with a view to providing a delicate and reliable method for completely detecting and measuring these minute relative movements of the parts of the building on the two sides of a fissure that the crack micrometers have been devised by the Cambridge Scientific Instrument Company, Ltd., of Cambridge, England, and are, as already mentioned, at present in use at St. Paul's Cathedral among other places.

The apparatus consists of two essential parts, the micrometers themselves for measuring the relative movements in three directions, and the parts fixed to the wall the movements of which are measured.

They consist of two pins about ¼ in. in diameter projecting about 3 ins. from the wall, and one is fixed on each side of the crack. It is the relative movement of these pins that is measured in three directions:—

1. Increase of the horizontal distance between them by the "Opening Micrometer" marked A.
2. Change in level by the "Level Micrometer" marked B.
3. Horizontal movement perpendicular to the face of the wall by the "Face Micrometer" marked C.

The pins are made of case-hardened steel in order to prevent accidental damage to them and to reduce wearing of their surfaces. They are protected by brass tubes lined with felt, which should be well greased.

Holes are cut into the wall in the desired position on each side of the crack. A template is supplied by means of which the position of the holes is easily marked on the wall. It is advantageous to cut a channel as shown in Fig. 1, not shown in Figs. 2, 3, and 4, in order to allow a free passage for the air to escape as the hot cement is poured in.

The pins are then gripped in the clamp as shown in Fig. 2. By this means they are held firmly parallel to each other and at the correct distance apart.

The pins will also project the correct distance from the wall if care be taken to clamp the pins with the shoulder up against the edge of the clamp. The clamp is then pressed against the wall and held there by a piece of wood; it is adjusted by means of the screw C and the small circular level shown in the figure. The heated cement is now poured in at the openings A A, which form convenient runnels to lead it into the holes in the stone round the pins. Clay must be used to prevent the cement running out at the sides and below the pin.

The cement used is Williams' Patent Mineral Fusible Cement. It should be heated rather slowly, and care should be taken to prevent its burning. As it is heated it becomes more and more liquid till at a certain temperature further heating causes it to become thick and viscous. It should be poured when it has become only slightly viscous. When this is done the effect of the cooling action of the pin and stone is to make the cement more liquid, and it runs easily to fill up the space between the pin and the sides of the hole in the stone.

When the cement is set the clamp is removed.

Micrometer A (see Fig. 3) measures the horizontal distance between the centres of the pins. Horizontal movements in the same plane as the wall are thus registered, the measurements showing by how much the crack is opening or closing. The micrometer rests by means of two V notches on one of the pins, and the divided head is turned until the end of the micrometer screw just touches the other pin. The reading is now taken and the instrument transferred to the other pin, where a similar measurement is made. This double reading increases the accuracy of the results.

In order that the point of the instrument may bear in the same place on the other pin in each case, the body of the instrument must be pressed home against the shoulder on the first pin while the readings are being taken.

Micrometer B (see Fig. 4) measures the relative difference in height of two fixed points, one on each of the pins. The vertical movements of the pins relatively to each other are thus measured, and any shear occurring will be registered, as well as any tilting of the wall as a whole.

This micrometer consists essentially of a spirit level. When in position on one of the pins the micrometer screw is turned until the bubble of the level shows the instrument to be horizontal. The test is repeated on the other pin and the readings are noted. To ensure accuracy the device must bear against the collar of the pin. Instrumental errors are eliminated by the double reading.

Micrometer C (see Fig. 5) measures the horizontal movement normal to the face of the wall of the end of one pin relatively to the other pin. It thus records any outward or inward movement of the wall on one side of the crack relatively to that on the other. The instrument rests in its V notches on one of the pins, the point of the micrometer screw bearing centrally against the end of the pin. The head is now turned until the arm of the instrument just touches the end of the second pin. As before, readings are taken on both pins.

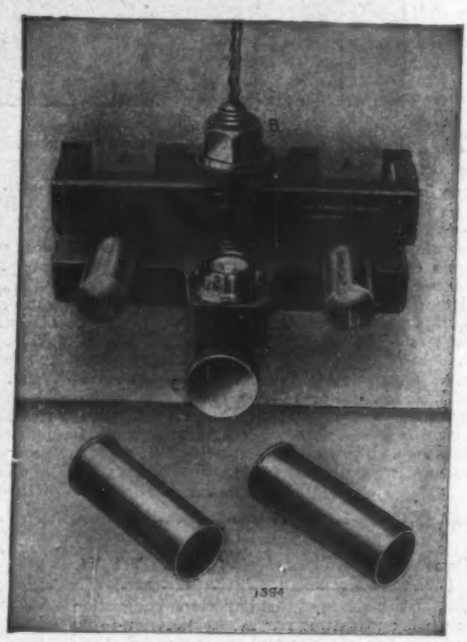

Fig. 2. Half Full Size.

In each case the pitch of the screw is such that one complete turn of the head represents one division of the vertical scale, i.e., 0·5 millimetre. The head being divided into 100 equal parts, direct readings down to ·005 mm. may be obtained. The readings are quickly convertible to fractions of an inch.

The micrometers should be tested periodically on two pins fixed into a solid block of

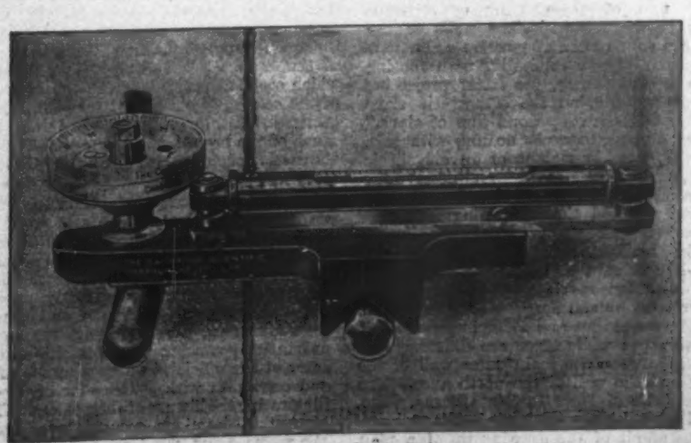

Fig. 4. Level Micrometer Marked "B." Half Full Size.

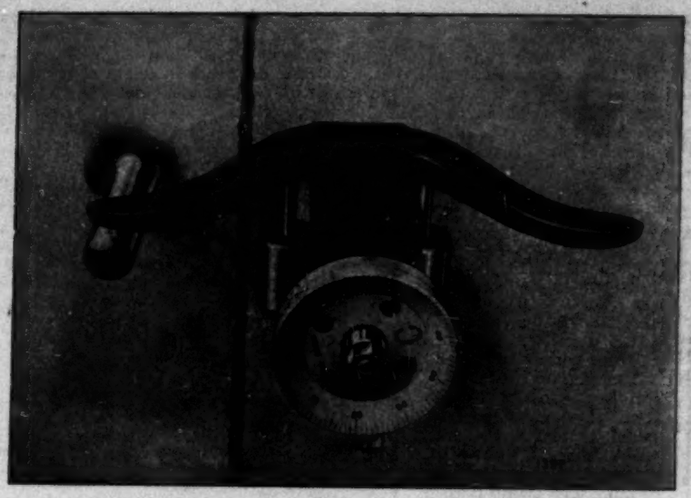

Fig. 5. Face Micrometer Marked "C." Half Full Size.

stone forming part of the building where there is no indication whatever of a crack between them. These readings will form a valuable test of the accuracy with which the measurements can be taken, and will at once indicate whether any change has taken place in the micrometers themselves. They give a means of distinguishing between movements in the crack and changes in the micrometer due to accidents or warping, or to change in temperature. If by any misfortune the micrometers were broken the tests after the repair on the check pins would give sufficient data to enable a comparison to be made between the original readings and a reading taken with the repaired micrometer or with a new one.

BOOKS.

Papers of the British School at Rome. Vol. VI. (London: Macmillan. 1913. 42s. net.)

THE sixth volume of this important publication is neither in matter nor interest inferior to its predecessors, while in bulk it is certainly their superior. The first paper is a composite description by such well-known scholars as the Director of the School, Professor N. Tagliaferro, and their colleagues, of the excavations carried on in Malta and Gozo during the years 1908-11, which have resulted in the discovery, or the rediscovery, of many important megalithic monuments. It is satisfactory to learn that the Government of Malta is so awake to the value of these excavations as to carry them out at its own expense, and to afford every help to the distinguished archæologists whose services they have been fortunate enough to secure.

There are three main groups of megalithic monuments in Malta, one of which has not yet been excavated; of the others, those at Hagiar Kim and Mnaidra are of the highest importance, and afforded much valuable evidence in the way of pottery and implements, apart from the monuments in which they are rich. The great building on Corradino Hill is of peculiar interest, since it "consisted of at least four parts or groups of rooms, not accessible from one another," two of them "having separate entrances in the façade." The walls of the façade "are constructed of massive slabs, now much broken, placed vertically, with footing blocks in front of them, the latter projecting about 0·60 m. Behind the orthostatic slabs is packing, and then a second line of slabs." The plans and photographs dealing with this, one of the most important of all megalithic buildings, are of great interest, and deserve the most careful study. At Mnaidra further excavation revealed the interesting fact that the tabernacle-like shrine previously known rested in reality upon a carefully-turned pedestal-like column curiously suggestive of a baetyl. Miscellaneous clay objects, among them a well-wrought human head, were found along with pottery and flint and stone implements of the usual type; while there are differences in technique between the main outer wall of the building and the wall of the north apse. The prehistoric site of Torri Ta Santa Verna, Gozo, revealed megalithic walls sufficiently well preserved to admit of the drawing up of a plan, and the discovery of a cemetery with abundant human remains, as well as implements, bones, etc., is of considerable interest. The spiral and conical images and the amulets suggest, it is said, religion and beliefs similar to those evidenced by the various sanctuaries of the islands. It is also satisfactory to learn (p. 116) that "under the direction of the Museum Department the structure has been covered up and the skeletons walled in, so that everything can be re-examined at any future time."

Dr. Mackenzie's paper on the Dolmens and Nuraghe of Sardinia shows the extraordinary richness of this little-visited island in these monuments, and traces the different types with accuracy and clearness. The paper also gives hints of local beliefs in the "dancing ring of the fairies," a singular dolmen in the heart of a wood; and the descriptions of the Nuraghe Latteri, near Ala, buried amid forests of cork, oak, and ilex; and the well of Santa Cristina, with its splendid masonry, suggest that other legends dealing with primitive work of so impressive a character must await the folk-lorist who shall travel notebook in hand in this comparatively little-known island, where the Nuraghe—"Tombs of the Giants"—are a feature of the country as suggestive as they are famous.

The third and fourth papers, by Sir Sidney Colvin and Mrs. Strong, deal with unpublished drawings of Roman reliefs by Renaissance artists. Plate XXXV., a drawing probably by G. Antonio da Brescia, represents one of the sculptured panels from the Arch of Constantine, and is significant enough as a representation of antiquity seen through the medium of a fifteenth-century artist, besides preserving certain details now lost on the original. Mrs. Strong's article deals with a series of drawings in the collections of the Duke of Devonshire at Chatsworth, representing scenes from the Column of Trajan, and attributed to some artist of the Florentine School. The fifth paper, again by the Director of the School, contains Addenda and Corrigenda to his earlier paper on "Sixteenth-Century Drawings of Roman Buildings attributed to Andreas Coner (*Papers*, Vol. II.). Particularly interesting are the elevation of the Arch of Gallienus (p. 188) and the documents quoted on pp. 202-3, which deal with the much-disputed question of the ultimate fate of the bronze taken from the Pantheon, and which seem to prove that the traditional story of the casting of the great baldacchino over the Confessio in St. Peter's is certainly true, although much of the bronze was unquestionably used in the casting of cannon for the Castle of St. Angelo. *Quod non fecerunt barbari, fecit Barberini.*

The sixth and longest paper in the volume—a monument of research—deals with an untouched subject, the Norman Administration of Capua and Apulia, and is the work of the present Librarian of Lady Margaret Hall, Miss Evelyn Jamison. This masterly paper deals with the conquests of Apulia and Capua, the development of the monarchy, the scheme of provincial government, the position and character of the officials in charge of the provinces, and concludes with a Calendar of Documents illustrating the history of their offices. The Index of Authorities alone occupies over five pages; the whole paper, 261 large quarto pages. This is the greatest contribution, to our knowledge, yet made by the historical section of the British School, and we trust it may be followed by others as learned and as lucid.

A brief paper by Mr. A. H. S. Yeames gives extracts from the diary of an unknown traveller who visited Rome in 1622—a simple soul who believed what the guides told him and admired all the orthodox sights, from the Farnese Bull to the Borghese Palace, but reserved his enthusiasm for the obvious glories of palaces and processions and the surprises to be found in certain waterworks. The eighth and last paper, again by Dr. Ashby, deals with the activities of Thomas Jenkins in Rome, and shows that notorious dealer in antiques in a less unfavourable light than usual. Winckelmann's belief in his honesty, however (p. 492), seems misplaced after the revelations in Smith's *Life of Nollekens*; and Dr. Ashby admits that he was not above the trade in forged inscriptions, which Cavaceppi and Piranesi seem actively to have carried on. The man who kept an artist to produce Italian drawings for credulous buyers, who "followed the trade of supplying the foreign visitors with intaglios and cameos made by his own people, that he kept in a part of the ruins of the Colosseum fitted up for 'em to work in slyly by themselves," and sold a botched statue of Minerva as a genuine antique (*Nollekens*, Chapters I., XI., and XII.), was hardly a trustworthy guide to the acquisition of antiquities of any description; but Jenkins's taste was sound if his morality was not, and his work as an excavator is of real importance.

We have only to note that this volume is furnished with an excellent table of contents in place of an index, and that in printing, illustrations, and general get-up it is worthy of its contents and of the British School at Rome.

Sewage-Drainage Systems. By ISAAC SHONE, C.E. (London: E. & F. N. Spon, Ltd., 57, Haymarket. 20s. net.)

THIS volume is devoted to the consideration of drainage and sewerage systems, more especially with regard to the questions of ventilation and the ejection of sewage by pneumatic ejectors, and the author's name is well known in the sanitary world as the inventor of the Shone pneumatic ejectors which have been installed for dealing with the drainage in many important buildings in London and elsewhere.

The matter is presented in a somewhat unusual manner to the reader, as the whole of the contents of importance are given under the title of appendices, and the volume is commenced with an open letter addressed to the President of the Local Government Board. Although the book contains over 450 pages, and is illustrated by numerous diagrams, we consider that the whole of the useful information and facts could have been presented in less space and presented in such a form that they would have been more readily accessible to the reader, and there is far too much matter of a personal nature, which is somewhat out of place in a technical work. The hydraulic and thermo-dynamic tables should be of great value to sanitary engineers, and there is a great deal of useful information in Appendix I., which sets forth the paper read by the author before the Incorporated Association of Municipal and County Engineers at Liverpool in 1907; and this is followed by supplementary notes and illustrations in Appendix II., which cover the whole question of the proper ventilation of drains and sewers. The diagrams throughout are well drawn and explanatory, and there is much in the volume to recommend it, in spite of the criticisms given above.

MAGAZINES AND REVIEWS.

WE have before us the four quarterly parts of the *Architectural Association Sketch Book*, which maintains its most excellent reputation, and the choice of subjects covers, as usual, a very wide range. We are glad to see that, in spite of the vogue of the later work, Wren's churches still attract the architectural student, and no fewer than three of them—St. Mary, Abchurch; St. Nicholas, Cole; and St. Vedast—are among the measured drawings given; while St. Martin's-in-the-Fields is illustrated by several fine drawings. Blenheim is shown in some well-executed measured drawings by Mr. H. C. Mason, which we a little regret, as, though Vanbrugh's compositions are fine, his detail is not of a character to repay study. The Manchester Town Hall and Art Gallery are also the

subjects illustrated, and there are a number of good Gothic subjects, among which may be mentioned the picturesque church of St. Thomas at Winchelsea, some remarkably fine drawings of Finedon Church, Northants, by Mr. H. S. Stephens, and the strange and unique church of All Saints, Maldon, with its triangular tower. The foreign work illustrated is mainly French and Italian. Altogether the *Sketch Book* contains an excellent collection of very useful measured work, and the seventy-two plates contained in it are well worth a guinea.

The *Architectural Record* (New York) March number is hardly up to the usually high standard which characterises most of its numbers. A "Recent Country House on Long Island," by Messrs. Stephenson & Wheeler, to which much space is allotted, is a somewhat dull and commonplace design. In an article on "Furniture from an Architectural Viewpoint" some Jacobean furniture of no outstanding merit is illustrated; while we have seen the Hotel Beltmore (which is not remarkable except for its gigantic size) made a feature of in other contemporary architectural publications. An article on "Tapestry and the Hotel" and one on "Architectural Models" fill the remainder of a distinctly poor monthly issue.

The *Nineteenth Century and After* is an especially good number this month, though the articles of immediate interest to our readers may not be many. A particularly well-informed contribution by Mrs. Ady on "Roman Gardens of the Renaissance" shows an intimate knowledge of the subject, and the fact that its publication follows so quickly the reading of Mrs. Patrick Villiers-Stuart's paper on "Indian Water Gardens" before the Royal Society of Arts, parts of which appear on p. 435 of our present issue, suggests that more attention is being given to a subject of never-ending charm. The following passage from Mrs. Ady's article will be of interest:—

> Raphael himself, without doubt, designed the gardens of Villa Madama. Of this we have certain proof in a drawing by his own hand in the Uffizi (No. 1255). Here, lightly sketched after his manner, are the outlines of the extensive gardens which he planned on the north-east of the house, where the ground falls towards the Tiber and Ponte Molle. We see how carefully he adapted his design to the configuration of the hillside by placing the gardens at three different levels. First of all, from the terrace in front of the façade, a double flight of steps led down to a square garden laid out in flower-beds and divided by pergolas, meeting in a central pavilion. From this parterre another broad stairway led to a round garden, adorned with loggias and clumps of cypresses, while the third and largest garden, shaped in the form of a circus, lay in the hollow of the valley. This lowest garden could be used as an arena for games and bull-fights, and contained an oval piece of water evidently imitated from the oblong basin excavated in the tufa of the Poecile at Hadrian's villa. From the slight indications given in Raphael's sketch his pupils filled up the plans and produced designs in which the temples, loggias, stairways, fountains, and groves are clearly marked, and the names of the trees—oranges, beeches, and chestnuts—are written.

Harper is more than usually interesting this month, as, apart from its stories, it contains an article on Gravity, by Sir Oliver Lodge, and a contribution by Mr. Ellsworth Huntington entitled "The Mystery of the Yucatan Ruins," illustrated by photographs which give a good idea of the character of these remarkable ruins. "A Group of Impressions," by Mr. F. Walter Taylor, consist of five extremely good and realistic Thames Dock views. In writing of his investigations of the ruins in Yucatan, Mr. Huntington says that there is every evidence that there was once a city there with as large a population as the entire country now possesses, and that these people were the equals of the ancient Greeks. There are strong reasons for believing that the ruins date back a long time before the coming of the Spaniards. "The Greeks borrowed much of their culture from their neighbours; the Yucatecos, so far as we can learn, had no one from whom to borrow. The Greeks had at their command the accumulated store of knowledge and of tools from half a dozen great nations, the Yucatecos had only their own culture and their own crude tools to rely on. Each of these two nations was great because it was full of new ideas. We know the ideas of the Greeks not only from their ruins, but from their books. Those of the Yucatecos are known only from their ruins, and yet those ruins show that in art, architecture, and the allied crafts brilliant ideas must have been numerous."

The first number of the *Scientific Review*, which is to be published monthly at the price of 6d., is before us. In the Editorial columns we learn that this is the age of Science, which, we hope, does not imply that it may not also be an age of Art! The object aimed at is to supply a popularly written non-technical review of all that is newest in the world of science and technology; a review, in short, of the specialised contemporary literature devoted to scientific matters. This information will be classified under separate headings so that the reader may see at a glance the progress that is being made in the subject in which he is specially interested. Authoritative articles written by experts will also form a feature of the review. The present number contains sections devoted to notes on Engineering, Wireless Telegraphy, the Scientific Side of Polar Exploration, Man-Lifting Kites, Book Reviews, and a number of other subjects. We hope the magazine will fill a want which we can understand has been felt—that of focusing and collecting information on scientific matters in one periodical.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Viscount Peel, Chairman, presiding.

Loans.—The Finance Committee recommended that loans be made as follows:—£1,600 to the Hackney Metropolitan Borough Council for street improvement; £2,500 to the Stepney Borough Council for street improvements and site for depôt; £10,087 to the Southwark Metropolitan Borough Council for electricity undertaking; £15,000 to the Woolwich Metropolitan Borough Council for electricity undertaking.

Tenders.—Tenders were received for the enlargement of Halstow-road School, Greenwich.

TRADE CATALOGUES.

WE have before us an interesting catalogue of fireplace suites issued by the Carron Company, whose reputation has always been high and who have improved their position since their amalgamation with Messrs. Longden, who have done so much for the improvement of metal-work design in grates and fireplaces. Though there is much to be said for the design of mantelpieces as part of a room and not as bought accessories, the catalogue contains much that any architect might find suitable for use. Included in the suites given we may mention the excellent Adam design, No. 49 Suite, No. 54 Suite, No. 57 Suite, No. 66 Suite, while Nos. 96 and 97 are very suitable for bedrooms. The Carron Company's grates are among the best designed examples of their kind, and are well and deservedly known in the architectural profession.

Messrs. J. & W. Stewart, of Caxton House, Westminster, have issued a booklet dealing with concrete piling. Three pages are devoted to a description of Stewarts' C-P concrete piles, while various illustrations are also given. The C-P (cast in place) method of concrete piling may be shortly described as follows:—A heavy steel tube is placed on top of a loose cast-iron point and driven into the ground by means of a heavy drop hammer, and the tube is filled with concrete to a height of several feet above the level at which it is desired to finish the head of the pile. The tube is then steadily withdrawn, the concrete sinking, expanding, and tightly filling up the hole so formed. Messrs. Stewart also carry out reinforced concrete work of every description.

LAW REPORTS.

IN THE HIGH COURT OF JUSTICE.
(Before Mr. MUIR MACKENZIE, Official Referee.)

Butt *v.* McDiarmid.

THIS action, which was a claim for work done and materials supplied in redecorating, adding to, and improving the country residence of Mr. Arthur Hallam McDiarmid, a London solicitor, known as the Manor House, at Bury, in Sussex, which defendant desired to be preserved as an old country mansion, concluded this week.

The original charge for the work amounted to £1,674 6s. 7d., and various sums of money having been paid during the progress of the work, amounting to £644 1s. 2d., left the balance now claimed at £1,030 5s. 5d.

The hearing occupied ten days, and was brought to a close on Tuesday last week, when the Referee gave judgment. Amongst the witnesses called for the plaintiff were Mr. Jas. Wm. Stonhold, A.R.I.B.A., and Mr. Heyingham, of Arundel, surveyor to the Duke of Norfolk, and for the defence Mr. Milne, A.S.I., gave evidence.

Mr. Muir Mackenzie, in giving judgment, said that the defendant set up, as to a large portion of the work in respect of which the claim was made, that it came under verbal contracts by which the plaintiff undertook to do the work for fixed sums, which the defendant alleged he had already paid. The defendant further said that the amounts paid were more than sufficient to cover the extra work done. The verbal contracts were made at interviews, and as regards some of them the defendant alleged that they had been confirmed by letters. The plaintiff, however, denied that the contracts had been made. The burden of proof was technically upon the defendant, and he (the Referee) considered it his duty to decide that the defendant had not satisfied him that the two parties on any one of the occasions made complete verbal agreements. The question next arising was what was the sum to be paid to the plaintiff for his services and disbursements. He was entitled to be paid a fair and reasonable value for the work done, but as to that the expert witnesses called on the one side and the other had differed materially, and therefore afforded him but little help in forming a conclusion. He had, however, some data upon which he could act. It appeared that the plaintiff was at work during sixty weeks, and there were documents shewing the amounts for which he (plaintiff) was willing to do certain parts of the work. And there was evidence as to the amount he had paid away in wages. Upon the whole of the facts he came to the conclusion that the plaintiff's claim was greatly exaggerated, while some items charged were inadmissible. On the other hand, the fair and reasonable value of the plaintiff's work came to more than the defendant had paid on account. Taking all the facts into consideration, he had come to the conclusion that £1,089 was a fair amount for plaintiff to charge, and of that amount the defendant had already paid £739, leaving £350 as the amount for which plaintiff would get judgment.

Judgment was accordingly entered for plaintiff for £350 with costs.

A stay of execution was asked for and granted on the usual undertakings.

Mr. James Scarlett and Mr. Lawrence Mead, instructed by Mr. E. L. Greaves, of Sergeant's Inn, E.C., were for the plaintiff; and Mr. Johnston Edwards, instructed by Messrs. McDiarmid & Son, appeared for the defendant.

Important to Builders.

BEFORE a full bench of magistrates at Leamington recently was heard a case of considerable interest to builders. Mr. Thomas Pratt, who has recently rebuilt and modernised many old-fashioned residences, purchased a mansion in Beauchamp-avenue, razed it to the ground, and commenced building a large modern villa residence on the site. The old mansion had, previous to his purchase, stood empty for years, and the stables and offices were in a tumbledown condition. Pending rebuilding operations, Mr. Pratt utilised these outhouses for storing materials required while rebuilding was going on. The Borough Treasurer at once assessed the stable and outhouses as in "beneficial occupation" and claimed rates. This claim Mr. Pratt resisted.

Mr. Harry Field, who appeared on Mr. Pratt's behalf, cited precedents where similar assessments, notably in Newcastle, had been disallowed.

Mr. Pratt, in support of his own claim to exemption, said the outhouses were there, and he used them, but did not really require them; he could have done just as well without them. He had pulled down more houses in Leamington than any other builder in the town, and his utilisation of similar lapsed outhouses had never been questioned.

The Bench, after consultation, decided that in the circumstances the rates were not enforceable.

LONGTOWN (CUMBERLAND) RURAL DISTRICT WATERWORKS.

Messrs. Taylor & Wallin presented their Report to the Longtown Rural District Council for supplying portions of the parishes of Hethersgill and Stapleton with water, the estimate being about £3,500. The Council have now instructed Messrs. Taylor & Wallin to extend the scheme, and report fully upon supplying the north-eastern, eastern, and south-eastern portions of the rural district. By this extended scheme eleven parishes are under consideration, the scheme necessitating probably something like 30 to 40 miles of water-mains.

List of Competitions, Contracts, etc.

For some contracts still open, but not included in this List, see previous issues. **Those with an asterisk (*) are advertised in this number:** Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointment, xxv.; Auction Sales, xxx. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

Competitions.

APRIL 15.—**Durham.**—INSTITUTE.—The Trustees of Sacriston Literary Institute are prepared to receive plans for the proposed new institute. Plans to be received on or before April 15. Secretary, Mr. John Walker, 11, Eliza-street, Sacriston, Durham.

MAY 1.—**Glasgow.**—SYMBOLICAL SCULPTURE.—The Glasgow Corporation invite sculptors to submit competitive models for four groups of symbolical sculpture. See advertisement in issue of March 6.

MAY 4.—**London.**—ST. PAUL'S BRIDGE.—The Bridge House Estates Committee of the Corporation of London invite designs from British architects for the architectural treatment of St. Paul's Bridge. Premiums, £300, £200 and £100 respectively. The assessor is Sir William Emerson, P.P.R.I.B.A. See advertisement in issue of December 12.

MAY 15.—**Home Counties.**—LABOURERS' COTTAGES.—The proprietors of *Concrete and Constructional Engineering* invite designs for labourers' cottages. Premiums 100 guineas, 50 guineas, and 25 guineas respectively, and two at 10 guineas each. See advertisement in issue of March 27.

JUNE 2.—**Grimsby.**—CLUB.—The Committee of the New Constitutional Club invite designs for new premises to be erected at a cost of £3,000, exclusive of fees and furnishing. Premiums of £40 (which will merge with the architect's commission), £20, and £10 respectively. Particulars of Mr. H. W. V. Skeckell, secretary, Constitutional Club, Victoria-street, Grimsby. Deposit, £2.

JUNE 20.—**Orillia.**—MONUMENT.—The Executive Committee of the Champlain Tercentenary Committee invite competitive designs for a monument to Samuel de Champlain. Not to cost more than £4,100. See advertisement in issue of February 13.

JANUARY 15, 1915.—COLLEGE MEMORIAL LECTURE HALL.—Designs for the Alexander Thompson Travelling Studentship must be delivered by the above date.

* NO DATE.—**Chester.**—HOUSING DESIGNS.—The Chester Corporation invite designs for erection of houses for the working classes. Premiums, £50, £25, and £10.

Contracts.

BUILDING AND PAINTING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

APRIL 11.—**Bridport.**—HOSPITAL.—Erection of a new hospital at Bridport, Dorset. Quantities of the architects, Messrs. Shayler & Bill, Wellington, Salop. Deposit, £1 1s.

APRIL 11.—**Wakefield.**—HALL.—Erection of a Sunday school and assembly hall for St. Luke's Church, Sharlston, near Wakefield. Names to Messrs. J. William Cocking and Frank Abbey, joint architects, District Bank-chambers, Huddersfield.

APRIL 14.—**Barrow-in-Furness.**—ADDITIONS, ETC.—Erection of a new classroom and alterations to the existing building at the Latons-street Infants' School, Vickerstown. Quantities at the Borough Engineer's Office, Town Hall.

APRIL 14.—**Chester.**—PAINTING.—For painting and decorating the interior of the Central Home, Wrexham-road, Chester, for the B.G. Specification of the Superintendent.

APRIL 14.—**Hertford.**—PAINTING, ETC.—Repairs and painting at the following places, viz., the swimming bath, Hartham Lodge and No. 20, Port-hill, for the Corporation. Particulars at the Borough Surveyor's Office.

APRIL 14.—**Platt Bridge.**—SCHOOL.—Erection of an infants' school. Plans and specification can be seen at Platt Bridge Vicarage. Quantities from Messrs. Biram & Fletcher, George-street, St. Helens. Deposit, £1 1s.

APRIL 14.—**Radstock.**—BAKERY PREMISES.—The Radstock Co-operative and Industrial Society, Ltd., invite tenders for the erection of a block of bakery premises, and for the execution of certain other works near the Midland Railway Station, Radstock. Quantities of Mr. William F. Bird, M.S.A., architect, Midsomer Norton.

APRIL 14.—**Rhubina.**—HOUSES.—Erection of eighteen semi-detached houses for the Cardiff Garden Village Company, Ltd., at Rhubina. Specifications of Mr. A. H. Mottram, A.R.I.B.A., architect, 4, Park-place, Cardiff.

APRIL 14.—**Straffan.**—HOUSE.—Erection of house at Hartswell, Straffan, Co. Kildare, for Mr. Malone. Mr. B. H. C. Hall, architect, Town Hall, Naas.

APRIL 15.—**Crompton.**—COTTAGES.—For erection of twenty semi-detached cottages on the Shaw Lodge Estate for the Crompton Co-operative Provident Society, Ltd. Applications to the secretary, Park-street, Shaw.

APRIL 15.—**Dromore.**—CHURCH.—Erection of church at Dromore, Co. Down, for the Committee of Dromore First Presbyterian Church. Quantities of Mr. S. C. Hunter, Scottish Provident-buildings, Belfast. Mr. S. Stevenson, architect, 9, Royal-avenue, Belfast. Deposit, £1 1s.

APRIL 15.—**Macclesfield.**—CONVENIENCE.—Erection of a sanitary convenience, York-street, for the Corporation. Quantities at the Borough Surveyor's Office, Town Hall.

APRIL 15.—**Milnrow.**—RETORT HOUSE.—Demolishing an existing retort house and chimney and building a new brick retort house, 78 ft. long by 37 ft. wide, for the Milnrow Gas Company. Particulars of Mr. J. W. Bottomley, Manager, Gasworks, Milnrow.

APRIL 15.—**Oldham.**—CUBICLES.—Erection of cubicles at Westhulme Hospital for the Corporation. Quantities of the Borough Surveyor.

APRIL 15.—**Rotherham.**—OFFICES.—Erection of offices at Rotherham (Masboro'), for the Midland Railway Company. Quantities at the Engineer's Office, Derby Station.

APRIL 15.—**Various Places.**—PAINTING.—The North-Eastern Railway Company invite tenders for painting the station buildings, etc., on the following branches, viz.:—(1) Consett Branch; (2) Pelaw and South Shields Branch, Brockley Whins and Tyne Dock Branch, and Harton Branch; (3) Tyne Dock engine stables, etc.; (4) Pelaw and Sunderland Branch, Boldon Branch, Brockley Whins Branch; (5) Scotswood, Newburn, and Wylam Branch; (6) engine stables, etc., at Gateshead. Quantities of Mr. F. E. Harrison, District Engineer, Forth Banks, Newcastle-on-Tyne.

APRIL 15.—**Various Places.**—PAINTING.—Painting the station buildings, etc., on the following branches, viz.:—(1) Haswell to Hartlepool; (2) Easington to Hart; (3) East and West Hartlepool Stations, for the North-Eastern Railway Company. Quantities at the office of the Company's District Engineer, Mr. W. D. Rudgard, Bishop Auckland.

APRIL 15.—**Various Places.**—PAINTING.—The North-Eastern Railway Company invite tenders for painting the station buildings, etc., on the following branches, viz.:—(1) Manors North to South Gosforth; (2) South Gosforth to Whitley Bay and Ponteland Branch. Quantities of Mr. F. C. Buscarlet, District Engineer, New Bridge-street, Newcastle-on-Tyne.

APRIL 16.—**Caerphilly and Pontycymmer.**—POLICE-STATIONS, ETC.—Erection of a new police-station at Caerphilly and alterations and additions to the police-station at Pontycymmer for the Standing Joint Committee of the Glamorgan Quarter Sessions. Quantities obtained at Caerphilly and Pontycymmer Police-stations and at the Glamorgan County Hall, Cardiff.

APRIL 16.—**Newcastle-on-Tyne.**—ALTERATIONS.—The Governors of Sherburn Hospital invite tenders for alterations and additions to the Master's house. Quantities of Messrs. Joseph Potts & Son, architects, 12, Eldon-square, Newcastle. Deposit, £1 1s.

APRIL 16.—**Wigan.**—DECORATION.—For decorating eighty-seven houses in Springfield-road, First-avenue, Second-avenue, and Third-avenue, Wigan, belonging to the Royal London Mutual Insurance Company, Ltd. Specification of the agents, Messrs. Geo. J. Healy & Sons, F.A.I., Arcade-chambers, Wigan.

APRIL 16.—**Wigan.**—PAINTING, ETC.—Painting, cleaning, etc., of the whole of the railings and posts enclosing the Mesnes Park. Superintendent's house (outside only), bowling green, pavilion, etc. Specification of the Borough Engineer, Mr. A. T. Gooseman, King-street West, Wigan.

APRIL 17.—**Bedwellty.**—HOUSES.—Erection of twenty semi-detached houses at Bedwellty for the Bedwellty Building Club. Specifications of Mr. Hugh Caldwell, C.E., Estate Office, Blackwood, Mon.

APRIL 17.—**Chard.**—FARM BUILDINGS.—Erection of new farm buildings at Combe St. Nicholas, near Chard, for the Somerset C.C. Quantities of Mr. E. G. Shettle, District Land Agent for the C.C., 6, Princes-street, Yeovil.

APRIL 17.—**Chitterne.**—COTTAGES.—Erection of eight cottages in the parish of Chitterne for the Warminster R.D.C. Specifications of Mr. C. C. Hancock, Surveyor to the Council, High-street, Warminster. Deposit, £1 1s.

APRIL 17.—**Sandwich.**—PARISH HALL.—Erection of new parish hall and works in connection therewith at Sandwich. Quantities of Messrs. Jennings & Gray, architects, 4, St. Margaret's-street, Canterbury. Deposit, £3 3s.

APRIL 18.—**Brentwood.**—RE-ERECTION.—Taking down of a two-span match-lined corrugated-iron building, 102 ft. long by 75 ft. wide, and re-erecting same on new site upon prepared foundations, at the Brentwood Asylum, Brentwood, Essex. Particulars obtained from the Clerk of Works.

APRIL 18.—**Cardiff.**—FLOORING.—Provision of terrazzo flooring at Cardiff Workhouse. Specification of Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

APRIL 18.—**Cardiff.**—NURSES' ROOM.—Extension of nurses' room at the Hospital, Headquarters Homes, Ely, near Cardiff, for the B.G. Specification of Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

APRIL 18.—**Cardiff.**—PAINTING, ETC.—Cleaning, colouring, painting, and paperhanging Children's Homes at (1) Headquarters, Ely; Cardiff and Penarth; and (2) Barry and Dinas Powis, for the B.G. Specification of Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

APRIL 20.—**Abertillery.**—WALLS, ETC.—For laying-out grounds of County School, erection of boundary walls, etc., for the Governors. Quantities of Mr. N. J. Llewellyn, Clerk, Council Offices, Abertillery. Deposit, £1 1s.

APRIL 20.—**Barrow-in-Furness.**—FLOOR.—Laying new floor, providing and fixing screen, etc., at the Old Town Hall. Quantities at the Borough Engineer's Office, Town Hall.

APRIL 20.—**Doncaster.**—BRIDGE.—Rebuilding and extension of the Sheepwash Bridge, Rossington, for the R.D.C. Specification from the Council's Surveyor, Mr. W. R. Crabtree, Union Offices, High-street, Doncaster.

* APRIL 20.—**East Preston.**—BOILER-HOUSE, ETC.—The Guardians of the East Preston Union invite tenders for the erection of a new boiler-house and chimney shaft, additional water-storage tanks, etc.

APRIL 20.—**Kendal.**—HALL.—Erection of public hall, Old Hutton, near Kendal. Information from Mr. F. R. Todd, Hon. Secretary, at the school. Specifications of Mr. J. Stalker, architect, Kendal.

APRIL 20.—**Knockcroghery.**—CHURCH TOWER, ETC.—For completing the tower and building a spire to the Catholic Church, Knockcroghery, for the Very Rev. M. Kelly, P.P. Specification of Messrs. William H. Byrne & Son, architects, 20, Suffolk-street, Dublin.

APRIL 20.—**Monmouthshire.**—SCHOOLS.—Tenders invited by the Monmouthshire E.C. for (1) extensions and alterations to the Blaenavon Hillside Council School, Blaenavon, Mon.; (2) erection of domestic arts and manual instruction centre at Blaenavon, Mon.; (3) erection of manual instruction centre at New Tredegar, Mon. Quantities at the office of Mr. John Bain, F.R.I.B.A., C.C. Offices, Newport. Deposit, £1 1s. in each case.

APRIL 20.—**Rotherham.**—EXTENSIONS.—For erection of extensions to the electricity works for the Corporation. Quantities of Mr. E. B. Martin, Borough Engineer, Town Hall, Rotherham.

APRIL 20.—**Thurnscoe.**—STABLES, ETC.—Erection of stables, outbuildings, and temporary offices in Lidgett-lane, Thurnscoe, for the U.D.C. Quantities, etc., of Mr. Thomas Bull, M.Inst.Mun.E., Surveyor to the Council, Council Offices, Thurnscoe. Deposit, 10s. 6d.

* APRIL 21.—**Willesden.**—BANDSTAND.—The Willesden U.D.C. invite tenders for supply and erection of a rustic bandstand.

APRIL 22.—**Blackpool.**—CONVENIENCE.—Provision of lavatory accommodation at the Marton Tram Depôt. Mr. Charles Furness, General Manager, General Offices, West Caroline-street, Blackpool.

* APRIL 22.—**Somerton.**—TRENCHES.—The Metropolitan Asylums Board invite tenders for construction of trenches and other work at the Eastern Fever Hospital.

* APRIL 23.—**Ashford.**—EXTENSION OF SWIMMING BATH.—The Managers of the West London School District invite tenders for extension of the swimming bath.

APRIL 23.—**Athlone.**—PLATFORM.—Raising of east end of Athlone Station up platform, for the Midland Great Western Railway of Ireland Company. Specification of Mr. Wm. Purcell O'Neill Chief Engineer of the Company, Broadstone Terminus, Dublin. Charge, 2s. 6d.

[Those with an asterisk (*) are advertised in this issue.]

BUILDING, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender or the names of those willing to submit tenders, may be sent in.

APRIL 23.—**Foxford.**—STATION HALT.—Building of a new station halt, comprising a platform and small station building, at the 162nd mile between Foxford and Ballina stations, for the Midland Great Western Railway of Ireland Company. Specification of Mr. Wm. Purcell O'Neill, Chief Engineer of the Company, Broadstone Terminus, Dublin. Charge, 2s. 6d.

APRIL 23.—**Rathlin Island.**—COTTAGES.—Erection of two dwellings at Rathlin Island, Co. Antrim, and a similar block at Greencastle, Co. Down, for the Commissioners of Irish Lights. Quantities of Mr. Hubert G. Cook, Secretary, Irish Lights Office, Carlisle-building, Dublin. Deposit, £2 2s.

APRIL 24. — **Glasgow.** — EXTENSION. — For carpenters' and plumbers' work in connection with the proposed extension of the Meat Market at corner of Hill-street and Armour-street. Specifications at the Office of Public Works, 64, Cochrane-street.

APRIL 24.—**Southampton.**—FARM INSTITUTE.—For erection of (1) principal's house; (2) alterations to lodge; (3) erection of cottages; (4) erection of cottages; (5) erection of greenhouses, etc.; (6) extension of water supply; (7) fencing of fields, etc., at the Farm Institute, Sparsholt. Quantities, etc., of Mr. A. L. Roberts, Architect to the Education Committee, The Castle, Winchester. Deposit, £2 2s.

APRIL 25. — **Bradford.** — ALTERATIONS, ETC.—Alterations and additions required at Wibsey Branch Library, for the Corporation. Quantities of the City Architect, Town Hall, Bradford.

APRIL 25. — **Dodworth.** — COUNCIL OFFICES.—Erection of Council Offices, etc., for the Dodworth U.D.C. Quantities of Mr. Ernest W. Dyson, architect and surveyor, 10, Regent-street, Barnsley.

* APRIL 25.—**Manchester.**—NEW SCHOOL.—The Manchester Education Committee invite tenders for various works required in the erection of a school.

APRIL 27. — **Uxbridge.** — BATHS.—Erection of public slipper baths at the Council's Depôt, Waterloo-road, Uxbridge. Specifications of the Council's Surveyor, Mr. William L. Eves, F.R.I.B.A., 54, High-street, Uxbridge.

APRIL 28.—**Beverley.**—HOUSE, COTTAGES, ETC.—Erection of Clerk and Steward's house, six cottages, farm bailiff's house, and dairy at the East Riding Lunatic Asylum, Beverley. Quantities at the office of the Agent, Mr. H. T. Tate, County Hall, Beverley. Deposit, £1 1s.

APRIL 30.—**Ashford.**—BATHS, ETC.—Erection of a building, comprising hot-water baths, attendant's room, etc., at Beaver-road, for the Ashford U.D.C. Specification of Mr. Wm. Terrill, Surveyor, Ashford, Kent.

APRIL 30.—**Various Places.**—PAINTING, ETC.—Cleaning and painting the station buildings, goods-sheds, approach fences, etc., at the following stations:—Tamworth, passenger and goods stations; Polesworth, passenger station; Atherstone, passenger and goods stations; Nuneaton, passenger station (up side only); Bulkington, passenger station; Shilton, passenger station (exclusive of inside of booking hall); Brinklow, passenger and goods stations, for the London and North-Western Railway Company. Quantities at the Divisional Engineer's Office, Castle Station, Northampton.

MAY 4. — **Tipperary.** — HOUSES.—Building of twenty-three one-story stone houses in accordance with plans, specifications, and conditions prepared by the Town Surveyor. Quantities, etc., at the U.C. Offices, Emmet-street, Tipperary. Deposit, £2.

* MAY 5.—**Rochester.**—SCHOOL EXTENSION.—Tenders are invited for extension of Sir Joseph Williamson's Mathematical School at Rochester.

MAY 8. — **Dunbell.** — SCHOOL. — Erection of a new National school at Dunbell, Co. Kilkenny, and a new National school at Castlewarren, Co. Kilkenny. Mr. J. Cahill, P.P., Clifden Villa, Kilkenny.

* MAY 11.—**Guildford.**—COTTAGES.—The Guildford T.C. invite tenders for erection of twenty cottages.

NO DATE.—**Bingley.**—PUMP-HOUSE, ETC.—Erection of pump-house, lime shed, offices, etc., at the Dowley sewage-disposal works, for the U.D.C. Quantities of Mr. H. Bottomley, Surveyor, Town Hall, Bingley.

NO DATE. — **Bury.**—PICTURE PALACE.—Erection of a picture house at Bury. Quantities to Mr. A. E. Millward, 9, Knowsley-street, Bury.

NO DATE.—**Carlisle.**—ADDITIONS.—For additions to Watch Hall, How Mill. Names to Mr. T. Taylor Scott, F.R.I.B.A., 36, Lowther-street, Carlisle.

NO DATE. — **Heaton.** — HOUSE.—Erection of a house at Heaton, Bradford. Quantities of Messrs. B. D. Fairbank & Son, architects, 1, Bank-street, Bradford, and 52, Hall-gate, Doncaster.

NO DATE.—**Leeds.**—PAINTING, ETC.—For tenders for the installation of electric light; also the painting, papering, and cleaning of the West Leeds Working Men's Club. Particulars from the Secretary.

NO DATE. — **Nab Wood.**—HOUSE.—Erection of a small detached residence at Nab Wood. Mr. H. W. Rogerson, M.S.A., architect and surveyor, 13, Cheapside, Bradford.

NO DATE.—**Willington.**—HALL, ETC.—Erection of new hall, billiard-room, and other alterations to premises of the Willington Workmen's Club. Specifications at the Secretary's office, 69, Commercial-street, Willington, Co. Durham.

FURNITURE, MATERIALS, etc.

APRIL 13. — **Glasgow.**—MATERIALS.—Supply of materials to the Corporation Gas Department. Specifications of Mr. Alex. Wilson, Gas Engineer, 45, John-street, Glasgow.

APRIL 16. — **Cardiff.** — CREOSOTE.—Supply of 100,000 gallons of creosote in accordance with specification to be obtained at the office of Mr. W. Harpur, M.Inst.C.E., City Engineer, City Hall, Cardiff.

APRIL 16.—**Gravesend.**—ROAD MATERIALS.—Supply to the Corporation of English basalt, English basalt chippings, granite setts, Scoria setts, and ragstone chippings. Form of tender of the Borough Surveyor, Mr. F. T. Grant, Municipal-buildings, Gravesend.

APRIL 16.—**Nottingham.**—MATERIALS.—Supply of materials to the Electricity Department of the Corporation. Forms of tender at the Department, Talbot-street, Nottingham.

APRIL 17.—**Wigan.**—MATERIALS.—Supply to the Gas Department of wrought-iron tube and fittings, brass and copper tube and fittings, lead gas pipe, street lamps, merchant iron, shovel and coke forks, wood troughing and covering, galvanised stove pipe and connections, cast mains and connections, etc. Forms of tender of Mr. Fred Betley, Engineer, etc., Borough Gasworks.

APRIL 18.—**Hamilton.**—MATERIALS.—Supply to the District of the Middle Ward, County of Lanark, of tools, fencing materials, drain pipes. Schedules from Mr. W. E. Whyte, District Clerk, Hamilton.

APRIL 20.—**Inverness.**—MATERIALS.—Supply to the Council of lime, ironmongery, special castings, cast and wrought ironwork, brasswork goods, wrought-iron pipes and fittings, lead, and excavating tracks for gas mains. Forms of tender of the Manager at the Gasworks.

APRIL 21. — **Brighton.** — CEMENT.—Supply of Portland cement for year for the Corporation. Form of tender of the Borough Surveyor, Town Hall, Brighton.

APRIL 21. — **Cork.**—MATERIALS.—Supply to the Cork Harbour Commissioners of timber, iron and steel, paints and oils, metal castings, brass and gunmetal castings, nails, screws, and files, etc. Forms of tender at the Engineer's Department, Harbour Commissioners' Offices, Custom House-street, Cork.

APRIL 22.—**Cardiff.**—TIMBER.—Supply of about twenty standards of Archangel red deals, 4 in. by 11 in. and 7 ft. long, in accordance with specification to be obtained at the office of Mr. W. Harpur, M.Inst.C.E., City Engineer, City Hall, Cardiff.

* APRIL 22.—**New Cross.**—CLEANING AND PAINTING.—The Metropolitan Asylums Board invite tenders for cleaning and painting work at the South-Eastern Fever Hospital.

* APRIL 23.—**Kensington.**—DECORATIVE WORKS AND REPAIRS.—The Kensington Board of Guardians invites tenders for decorative work at the Infirmary, Marloes-road.

APRIL 23. — **Stowmarket.** — FIRE-ENGINE.—Double-cylinder vertical steam fire-engine, capable of discharging 200 to 250 gallons per minute and throwing to a height of 140 ft. (or a motor fire-engine of similar capacity), complete with all accessories, and delivered at the Council's Fire-station, Stowmarket. Further information from the Surveyor.

APRIL 25.—**Leeds.**—MATERIALS.—Supply to the Corporation Gasworks of cast-iron pipes, retort castings, and flags. Forms of tender of Mr W. B. Leech, General Manager, Gas Offices, Market Hall, Leeds.

APRIL 25.—**Wigan.**—SANITARY PANS.—Supply of 1,000 galvanised sanitary pans for the Corporation. Mr. William Henry Tyrer, Town Clerk, King-street West, Wigan.

APRIL 27. — **Blaenavon.** — ROAD MATERIALS.—Supply to the Blaenavon U.D.C. of 850 tons of broken limestone and 150 tons of limestone gravel. Forms of tender of Mr. E. W. Edwards, Surveyor to the Council, Council Offices, Blaenavon.

ENGINEERING, IRON, AND STEEL.

APRIL 13.—**Godmanchester.**—RIVER WALL.—For building river wall in front of the causeway. Specifications of the Surveyor, Post-street, Godmanchester.

APRIL 14. — **Hindley.** — BOILERS. — Two new steam boilers (Lancashire type), for the Hindley U.D.C. Particulars of Mr. H. O. Timmins, Engineer.

APRIL 15.—**Blackburn.**—VENTILATION.—For the ventilation of the United Methodist Church, Knuzden, Blackburn. Specifications of Mr. J. Holden, 164, Accrington-road, Blackburn.

APRIL 15.—**Rochdale.**—CRANE, ETC.—For boiler feed pumps and electrically-driven engine-room crane, for the Electricity Committee of the Corporation. Specifications from Mr. C. C. Atchison, M.Inst.E.E., Engineer and Manager, Dane-street, Rochdale. Deposit, £2 2s.

APRIL 16. — **Cardiff.** — ROLLED-STEEL JOISTS.—About 45 tons of 6-in. by 5-in. rolled-steel joists, cut to short lengths in accordance with particulars to be obtained of Mr. W. Harpur, M.Inst.C.E., City Engineer, City Hall, Cardiff.

APRIL 18. — **Cardiff.** — HEATING.—Provision of hot-water heating arrangements in No. 8 Block at Ely Workhouse for the B.G. Specification of Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

APRIL 18.—**Cardiff.**—IRON RAILINGS.—Erection of wrought-iron boundary railings on land at Llandough, for the Board of Guardians. Specification of Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

APRIL 18.—**Farnworth.**—SWITCHGEAR, ETC.—Supply of switchgear and cables, for the Farnworth U.D.C. Specification from the Council's Engineer, Mr. A. J. Hutchinson, Electricity Works, Farnworth.

APRIL 18.—**Glasgow.**—FUEL ECONOMISER.—Supply and erection of one (pair) economiser and one steam superheater at Belvidere Hospital, Glasgow. Specifications of Mr. Peter Fyfe, Chief Sanitary Inspector, 23, Montrose-street, Glasgow.

APRIL 18. — **Halifax.**—INVERTED SIPHON.—Construction of an inverted siphon under the Calder and Hebble Canal and Hebble Brook at Salterhebble. Specification of Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax. Deposit, £10.

APRIL 18.—**Hull.**—CAST-IRON LINING.—Supply of about 200 tons of cast-iron lining for pumping well and shafts at Dunswell, near Cottingham, for the Corporation. Specification of Mr. C. B. Newton, M.Inst.C.E., City Water and Gas Engineer, Hull. Deposit, £1.

* APRIL 20. — **East Preston.** — BOILER.—The East Preston Union invite tenders for supply and erection of a new Lancashire steam boiler.

APRIL 21. — **Manchester.** — RAIL-BENDING MACHINE.—Supply of a power-driven rail-bending machine. Specification of Mr. J. M. McElroy, General Manager, Corporation Tramways, 55, Piccadilly, Manchester.

APRIL 22.—**Knottingley.**—RAILWAY WIDENING.—Widening of the line and construction of a connecting line at Knottingley, for the Lancashire and Yorkshire Railway Company. Quantities at the Engineer's Office, Hunt's Bank, Manchester.

APRIL 22.—**London.**—ELECTRIC INSTALLATION.—Electrical installation at the Wilson-street Elementary School, Islington, N., comprising about 218 wiring points and 283 lights, for the London C.C. Quantities, etc., from the Chief Engineer of the Council, Mr. G. W. Humphreys, at the County Hall, Spring-gardens, S.W. Deposit, £1.

APRIL 22.—**London.**—HOT-WATER SUPPLY.—Installing hot-water supply apparatus in ward blocks at the Eastern Fever Hospital, Homerton, N.E., for the Metropolitan Asylums Board. Specification at the Office of the Board, Embankment, E.C. Deposit, £1.

* APRIL 23.—**Ashford.**—REMOVAL OF CALORIFIERS, ETC.—The Managers of the W. London School District invite tenders for removal of calorifiers, pipe work, and sprays at the swimming bath.

* APRIL 25.—**Bottingdean.**—SEA DEFENCES.—The East Sussex C.C. invite tenders for sea defence works.

APRIL 27.—**Melbourne.**—CRANES.—The Agent-General for Victoria, Australia, invites tenders for overhead travelling cranes for sub-stations and lifting tackle for power-station, for use in connection with the electrification of the Melbourne Suburban Railways, now being carried out. Specification from Messrs Mers & McLellan, consulting electrical engineers, 32, Victoria-street, Westminster, S.W.

MAY 9.—**Isle of Man.**—BEACON.—The Commissioners of Northern Lighthouses invite tenders for the erection of a concrete beacon on the Whitestone Bank, which lies off the Point of Ayre, Isle of Man. The Whitestone Bank is submerged at all states of the tide. Plans at the office of Mr. D. A. Stevenson, M.Inst.C.E., Engineer to the Commissioners, 84, George-street, Edinburgh. Deposit, £1 1s.

ROAD, SANITARY, AND WATER WORKS.

APRIL 14.—**Aldershot.**—SEWERAGE.—Providing and laying of sewers, additions to pumping-station, new boiler and steam engine, etc. Particulars of Mr. F. C. Wren, Surveyor to the U.D.C., Municipal-buildings, Aldershot. Deposit, £3 3s.

APRIL 14.—**Kendal.**—SEWERAGE WORKS.—Construction of three 100-ft. diameter filter floors, with channels, humus tanks, storm-water tanks, and alterations to septic tanks, for the Corporation. Quantities of Mr. F. W. Oxberry, Borough Engineer, Town Hall, Kendal.

APRIL 14.—**Oldham.**—LEVELLING, ETC.—For excavating, levelling, and gas tub fencing, etc., at Hargreaves' Recreation Ground for the Corporation. Quantities at the Borough Surveyor's Office.

APRIL 15. — **Stoke.** — STREET WORKS. — For making-up four different streets. Quantities of the Borough Surveyor, Town Hall, Stoke-on-Trent. Deposit, £1 1s.

APRIL 16.—**Croydon.**—STREET WORKS.—Execution of street works in Downs Court-road, Coulsdon; and Birdhurst-road, Clive-road, Melrose-avenue, and Warren-road, Mitcham, for the Croydon R.D.C. Specifications of the Council's Surveyor, Mr. R. M. Chart, F.S.I., Katharine-street, Croydon. Deposit, £2.

APRIL 16. — **Oldham.** — STREET WORKS.—For making up portions of Manley-street and Windsor-road for the Corporation. Quantities at the Borough Surveyor's Office.

APRIL 17.—**Merton.**—ROADS.—Surfacing about 22,000 sq. yds. of the carriageway in Kingston-road, Merton, with bituminous material, for the Merton and Morden U.D.C. Specification of Mr. G. Jerram, Engineer and Surveyor, Council Offices, Kingston-road, Merton.

APRIL 17. — **Ossett.** — TRENCHWORK.—Digging and filling-in of trenches for gas mains, from Netherton to Midgley and in Horbury, for the Ossett Corporation. Specifications of Mr. A. E. Mottram, Engineer and Manager, Gasworks, Ossett.

APRIL 17. — **Prestwich.** — STREET WORKS.—Private street improvements in twelve streets, for the U.D.C. of Prestwich. Quantities of the Surveyor. Deposit, £2 2s.

APRIL 18.—**Bedwellty.**—ROAD.—Construction of an access road at Argoed, for the Bedwellty U.D.C. Quantities of Mr. Dan H. Price, Surveyor to the Council, Aberbargoed.

[Those with an asterisk (*) are advertised in this issue.]

ROADS, etc.—*continued*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

APRIL 18.—**Cardiff.**—ASPHALTING.—Making new asphalt playground at Headquarters Homes, Ely, for the Board of Guardians. Specifications of Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

MAY 18. — **Rhymney Valley.** — SEWERAGE WORKS.—Rhymney Valley Sewerage (Contract No. 1), Bristol Channel to Cefn-Llwyd Bridge, construction of sewers, storage tank, and discharge pipe for the Rhymney Valley Sewerage Board. Quantities of Mr. J. S. Alford, M.Inst.C.E., 9, Victoria-street, Westminster; of Messrs. Willcox & Raikes, M.Inst.C.E., 63, Temple-row, Birmingham; and of Mr. T. J. Thomas, 36, High-street, Bargoed, in the county of Glamorgan. Deposit, £20.

APRIL 20.—**Goole.**—SEWERS.—Construction of branch sewers and connections, consisting of about 6 miles of stoneware pipe sewers, with manholes and other appurtenances, in accordance with the plans and specification prepared by Messrs. John Taylor & Son, civil engineers. Quantities of the Clerk to the Goole U.D.C. Deposit, £5.

APRIL 20. — **Halifax.** — SEWER, ETC.—Construction of a retaining wall and 12-in. earthenware pipe sewer in Huddersfield-road for the Corporation. Specification of Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax. Deposit, £10.

APRIL 20.—**Westport.**—SEWER.—Construction of an outfall sewer for the town of Westport, in accordance with the plans, etc., of Mr. P. H. M'Carthy, B.E., M.Inst.C.E.I., which can be seen at his office, 39, Westmorland-street, Dublin. Quantities of Mr. Francis Egan, Town Clerk, Urban Council Office, Westport, Co. Mayo. Deposit, £3 3s.

APRIL 21. — **Axminster.** — SEWER.—Relaying sewer in Chard-street, Stockland, for the Axminster R.D.C. Specification of Mr. C. Forward, Clerk, Axminster.

APRIL 21.—**Salford.**—STREET WORKS.—Sewering, paving, and flagging works. Quantities from the Borough Engineer, Town Hall, Salford.

* APRIL 21.—**Willesden.**—ROAD-MAKING, ETC.—The Willesden U.D.C. invite tenders for road-making and paving works.

APRIL 23.—**Stockport.**—STREET WORKS.—Excavating and sewering Oakland-avenue, for the Corporation. Specification of Mr. John Atkinson, A.M.Inst.C.E., Borough Surveyor, Town Hall, Stockport.

APRIL 24.—**Mexborough.**—SEWERAGE WORKS.—Erection of two percolating filters, humus tank, and beds, with the necessary cast-iron piping, etc., for the Mexborough U.D.C. Quantities of Mr. G. Fenwick Carter, Surveyor. Deposit, £1 1s.

APRIL 26.—**Milton Regis.**—WATERWORKS.—Laying about ¾ mile of 3-in. cast-iron pipes for water mains, from Grovehurst to Iwade, for the Milton Regis U.D.C. Specification of the Surveyor, Town Hall, Milton Regis.

APRIL 29.—**Isle of Wight.**—WATERWORKS.—Providing and laying of about 9 miles of 2-in., 3-in., and 4-in. cast-iron mains, etc., for the Isle of Wight R.D.C. Quantities of the Engineer, Mr. W. Phelps, C.E., Charlton-road, Shepton Mallet, Somerset. Deposit, £2 2s.

* MAY 1.—**Lower Halstow.**—SEPTIC TANK AND DRAINAGE WORK.—The Kent Education Committee invite tenders for erection of a septic tank and the incidental drainage work.

NO DATE.—**Edinburgh.**—ROADS.—Formation of suitable roadway in connection with the Fife C.C. Sanatorium, Glenalmond. Quantities, etc., from the Engineer, Mr. William D. Telfer, 2, West Maitland-street, Edinburgh. Deposit, £1 1s.

NO DATE.—**Skipton.**—WATER MAINS.—For laying about 500 lin. yds. of 3-in. cast-iron water mains, etc. Specification of Mr. A. Butterfield, Secretary of the Carleton Waterworks Company, Carleton Mills, Skipton.

Public Appointment.

* APRIL 21. — SURVEYING ASSISTANTS. — The Shanghai Municipal Council invite applications for the above post. Salary, about £385 per annum.

Auction Sales.

* APRIL 21. — **East India Docks.** — Messrs. Fuller, Horsey, Sons, & Cassell will sell by auction, on the premises, plant and machinery.

* MAY 7.—**Sudbury.**—Messrs. Walton & Lee will sell by auction, at 20, Hanover-square, W., freehold plots.

* NO DATE. — **Haslemere.**—Messrs. D. Smith, Son, & Oakley will sell by auction during 1914 a freehold building estate.

[Those with an asterisk (*) are advertised in this issue.]

METROPOLITAN WATER BOARD.

AT the monthly meeting of the Metropolitan Water Board on Friday last week the following matters were dealt with:—

New Works in the Kent District.—A capital estimate of £21,925 was approved for the construction of a reservoir at Shooter's Hill, the erection of a pumping station, and the laying of a main.

Completion of Large Contract.—The Works Committee reported on the completion of the contract of Messrs. Charles Wall, Ltd., for the construction of King George's Reservoir Works in the Lee Valley, which was accepted in January, 1908. The total cost of the whole of the works had amounted to £346,579 7s. 9d., which is £2,703 7s. 9d. in excess of the contract sum, plus £3,106 additional authorised expenditure.

The Littleton Reservoirs.—The Works Committee submitted a number of revisions to the Board's model form of contract in respect of the conditions to be issued regarding the construction of reservoirs 6 and 7 at Littleton, and they stated that, in view of the fact that the estimated cost of the work exceeds £1,000,000, they had endeavoured to make the provisions relating to payment as reasonable as possible, so as to widen the range of firms who might be expected to submit tenders.

METROPOLITAN ASYLUMS BOARD.

AT the sitting of the Metropolitan Asylums Board on Saturday the following matters were dealt with:—

Tuberculosis Sanatoria.—In connection with the instruction to them to take the necessary steps for the provision of new sanatoria, the General Purposes Committee recommended that the Managers approve of the appointment of an architect, at an agreed fee, to advise generally as to the construction of a new sanatoria and to prepare sketch plans, and that, subject to this proposal being approved, the Committee be authorised to recommend the name of an architect and the fee to the Board. This was agreed to.

Quantities.—It was agreed that Messrs. W. T. Farthing & Son, of 46, Strand, W.C., be appointed to take out the quantities, at a commission of 1½ per cent. on the amount of the accepted tender, for the reconstruction and extension of East Cliff House, Margate, in accordance with the working drawings and specification to be prepared by Mr. T. W. Aldwinckle, architect.

Tooting Bec Asylum.—The Works Committee reported having had the plans before them of the complete scheme for the extensions at Tooting Bec Asylum, the estimated cost of which is £63,000. The plans are by Mr. T. W. Aldwinckle, architect. It was decided to forward them to the Local Government Board for approval.

FOREIGN AND COLONIAL.

Wooden Houses, Sheds, and Cottages, etc., Chile.

H.M. Consul at Punta Arenas (Mr. C. A. Milward) reports that he has received an inquiry for the names of United Kingdom constructors of wooden houses, sheds, cottages, etc., who ship these buildings in sections complete, so that they can be easily erected at their destination. Catalogues with prices (if possible c.i.f.) should be sent by United Kingdom builders of wooden houses, etc., to the British Consulate, Punta Arenas.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to THE BUILDER LTD., and not to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£	s.	d.
Best Stocks	1	16	6
Picked Stocks for Facings	2	10	0

Per 1000, Delivered at Railway Depôt.

	£	s.	d.		£	s.	d.
Flettons	1	14	0	Best Blue Pressed Staffordshire	3	15	0
Best Fareham Red	3	12	0	Do. Bullnose	4	0	0
Best Red Pressed Ruabon Facing	5	0	0	Best Stourbridge Fire Bricks	4	0	0

GLAZED BRICKS—

Best White, Ivory, and Salt Glazed Stretchers	12	7	6	Double Headers	14	17	6
Headers	11	17	6	One Side and two Ends	13	17	6
Quoins, Bullnose and 4½ in. Flats	15	17	6	Two Sides and one End	19	17	6
D'ble Str'tch'rs	17	17	6	Splays and Squints	17	7	6

Second Quality £1 10s. per 1000 less than best.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	9	,, ,,
Best Portland Cement	37	0	per ton, ,,
Best Ground Blue Lias Lime	20	0	,, ,,

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 14s. 0d. per yard delivered.
Stourbridge Fireclay in sacks 37s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube.

	s.	d.
BATH STONE—delivered on road waggons, Paddington Depôt	1	7½
Do. do. delivered on road waggons, Nine Elms Depôt	1	9½

PORTLAND STONE (20 ft. average)—

	s.	d.
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	4½
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	6½

Per Ft. Cube, delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks	1	10	Closeburn Red Freestone	2	0
Beer in blocks	1	6	Red Mansfield Freestone	2	4
Greenshill in blocks	1	10	Talacre & Gwespyr Stone	2	4
Darley Dale in blocks	2	4			
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks	2	10
Per Ft. Super., Delivered at Railway Depôt.		
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto, ditto	2	6
3 in. sawn two sides slabs (random sizes)	0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7
1½ in. to 2 in. ditto, ditto	0	6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks	3	0
Per Ft. Super., Delivered at Railway Depôt.		
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	9
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20 × 10 best blue Bangor	13	2	6	20 × 10 best Eureka unfading green	15	17	6
20 × 12 ditto	13	17	6	20 × 12 ditto	18	7	6
20 × 10 1st q'lity ditto	13	0	0	18 × 10 ditto	13	5	0
20 × 12 ditto	13	15	0	16 × 8 ditto	10	5	0
16 × 8 ditto	7	5	0	20 × 10 permanent green	11	12	6
22 × 10 best blue Portmadoc	12	12	6	18 × 10 ditto	9	12	6
16 × 8 ditto	6	12	6	16 × 8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Best "Hartshill" brand, plain sand-faced (per 1000)	45	0
Hip and Valley (per doz.)	3	7	Do. pressed (per 1000)	42	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	47	6
Do. Ornamental (per 1000)	52	6	Hip (per doz.)	4	0
Hip and Valley (per doz.)	4	0	Valley (per doz)	3	6
Best Ruabon red, brown, or brindle (Edw'ds) (per 1000)	57	6	Staffords. (Ranley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sand-faced (per 1000)	45	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz.)	3	0	Valley (per doz)	3	6

WOOD.

BUILDING WOOD.	At per standard.						
	£	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in...	15	0	0	..	16	10	0
Deals: best 3 in. by 9 in.....	15	0	0	..	16	0	0
Battens: best 2½ in. by 7 in. and 6 in., and 3 in. by 7 in. and 4 in.	12	10	0	..	13	10	0
Battens: best 2½ by 6 and 3 by 6	9	10	0		less than 7 in. and 8 in.		
Deals: seconds	1	0	0		less than best		
Battens: seconds	0	10	0	,,	,,		
2 in. by 4 in. and 2 in. by 6 in.	11	10	0	..	12	10	0
2 in. by 4½ in. and 2 in. by 5 in.	10	10	0	..	11	10	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.....	0	10	0	more than battens.			
¾ in.	1	0	0	,,			
Fir timber: best middling Dantzig or Memel (average specification)	At per load of 50 ft.						
	5	0	0	..	6	5	0
Seconds	4	10	0	..	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	..	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	..	3	10	0
Swedish balks	2	12	6	..	3	0	0
Pitch pine timber (30 ft. average)	6	0	0	..	7	0	0

JOINERS' WOOD.	At per standard.						
	£	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.....	26	0	0	..	27	0	0
3 in. by 9 in.	24	0	0	..	25	0	0
Battens, 2½ in. and 3 in. by 7 in.	18	10	0	..	19	10	0
Second yellow deals, 3 in. by 11 in.	21	10	0	..	22	10	0
Do. 3 in. by 9 in.	20	0	0	..	21	0	0
Battens, 2½ in. and 3 in. by 7 in.	15	0	0	..	16	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	16	0	0	..	17	0	0
Battens, 2½ in. and 3 in. by 7 in.	14	0	0	..	15	0	0
Petersburg: first yellow deals, 3 in. by 11 in.....	23	0	0	..	24	0	0
Do. 3 in. by 9 in.	20	0	0	..	21	0	0
Battens	15	0	0	..	16	0	0
Second yellow deals, 3 in. by 11 in.	17	10	0	..	18	10	0
Do. 3 in. by 9 in.....	16	0	0	..	17	0	0
Battens	12	10	0	..	13	10	0
Third yellow deals, 3 in. by 11 in.	14	0	0	..	15	0	0
Do. 3 in. by 9 in.....	13	10	0	..	14	10	0
Battens	11	10	0	..	12	10	0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	16	10	0	..	17	10	0
First white deals, 3 in. by 9 in.	14	10	0	..	15	10	0
Battens	13	0	0	..	13	10	0
Second white deals, 3 in. by 11 in.	14	10	0	..	15	10	0
Second white deals, 3 in. by 9 in.	13	0	0	..	14	0	0
Battens	12	0	0	..	12	10	0
Pitch-pine deals	25	0	0	..	26	10	0
Under 2 in. thick extra..	0	10	0	..	1	0	0
Columbian or Oregon Pine, best quality	23	10	0	..	26	0	0
Yellow Pine — First, regular sizes	50	0	0	upwards.			
Oddments	35	0	0	,,			
Seconds, regular sizes.....	36	0	0	,,			
Oddments	31	0	0	,,			
Kauri Pine—Planks per ft. cube	0	5	6	..	0	6	6
Dantzig and Stettin Oak Logs— Large, per ft. cube.....	0	3	0	..	0	3	9
Small ,, ,, ...	0	2	6	..	0	3	0
Wainscot Oak Logs, per ft. cube	0	7	6	..	0	9	0
Dry Wainscot Oak, per ft. super. as inch	0	0	10	..	0	1	2
¼ in. do. do.....	0	0	9	..	0	1	0
Dry Mahogany — Honduras, Tabasco, per ft. super, as inch	0	0	10	..	0	1	3
Selected, Figury, per ft. super. as inch	0	1	6	..	0	2	6
Cuba Mahogany	0	1	4	..	0	2	6
Dry Walnut, American, per ft. super, as inch	0	0	10	..	0	1	2
French "Italian." Walnut ..	0	0	10	..	0	1	4
Teak, per load (Rangoon or Moulmein)	20	10	0	..	26	0	0
Do., do. (Java)	19	0	0	..	22	10	0
American Whitewood planks, per ft. cube	0	5	6	..	0	6	6
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	14	6	..	0	18	0
1 in. by 7 in. yellow, planed and matched	0	14	9	..	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	17	6	..	1	3	0
1 in. by 7 in. white, planed and shot	0	14	0	..	0	16	0
1 in. by 7 in. white, planed and matched	0	14	3	..	0	16	6
1¼ in. by 7 in. white, planed and matched	0	16	6	..	0	8	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed boards.....	0	12	6	..	0	15	0
1 in. by 7 in. ,, ,,	0	15	0	..	0	18	6
¾ in. by 7 in. white ,, ,,	0	12	0	..	0	14	0
1 in. by 7 in. ,, ,,	0	14	6	..	0	16	6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton.						
	£	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	9	0	0	..	10	0	0
Compound Girders, ordinary sections	11	0	0	..	12	0	0
Steel Compound Stanchions..	12	0	0	..	13	0	0

JOISTS, GIRDERS, &c. (*continued*).

	In London or delivered Railway Vans, per ton.						
	£	s.	d.		£	s.	d.
Angles, Tees, and Channels, ordinary sections.....	11	0	0	..	12	0	0
Flitch Plates	11	0	0	..	12	0	0
Cast Iron Columns & Stanchions, including ordinary patterns	8	15	0		9	0	0

METALS.

	Per ton, in London.						
	£	s.	d.		£	s.	d.
IRON— Common Bars	9	0	0	..	9	10	0
Staffordshire Crown Bars, good merchant quality ..	9	5	0	..	9	15	0
Staffordshire "Marked Bars"	11	0	0	..	—		
Mild Steel Bars	9	5	0	..	9	15	0
Hoop Iron, basis price	10	0	0	..	—		
,, ,, Galvanised....	17	10	0	..	—		
,, ,, * And upwards, according to size and gauge.							
Sheet Iron Black— Ordinary sizes to 20 g.	10	5	0	..	—		
,, ,, 24 g.	11	5	0	..	—		
,, ,, 28 g.	12	15	0	..	—		
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0	..	—		
Ordinary sizes to 22 g. and 24 g.	16	0	0	..	—		
Ordinary sizes to 26 g.	17	0	0	..	—		
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18	10	0	..	—		
,, ,, 22 g. and 24 g.	19	0	0	..	—		
Ordinary sizes to 26 g.	20	10	0	..	—		
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g.	15	0	0	..	—		
Ordinary sizes, 22 g. and 24 g.	15	5	0	..	—		
Ordinary sizes, 26 g.	16	15	0	..	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	10	0	..	—		
Best Soft Steel Sheets, 22 g. & 24 g.	13	10	0	..	—		
Best Soft Steel Sheets, 26 g...	15	10	0	..	—		
Cut Nails, 3 in. to 6 in.....	11	0	0	..	11	10	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	Delivered in London.						
	£	s.	d.				
LEAD—Sheet, English, 4 lb. and up	21	10	0	..	—		
Pipe in coils.....	22	0	0	..	—		
Soil pipe	25	0	0	..	—		
Compo pipe	25	0	0	..	—		
ZINC—Sheet—	In casks of 10 cwt.						
Vieille Montagne	28	5	0	..	—		
Silesian	28	10	0	..	—		
Zinc, in bundles, 1s. per cwt. extra.							
COPPER— Strong Sheet ..... per lb.	0	1	1	..	—		
Thin ,, ,,	0	1	2	..	—		
Copper nails..... ,,	0	1	0	..	—		
Copper wire..... ,,	0	1	0	..	—		
BRASS— Strong Sheet ..... ,,	0	1	0	..	—		
Thin ..... ,,	0	1	1	..	—		
TIN—English Ingots .. ,,	0	1	10	..	—		
SOLDER—Plumbers' ,,	0	0	10	..	—		
Tinmen's ..... ,,	0	1	1	..	—		
Blowpipe ... . ,,	0	1	3	..	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3½d.
,, fourths	2d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	,, fourths	4½d.
,, fourths	3d.	Fluted Sheet, 15 oz.	3d.
26 oz. thirds	4½d.	,, 21 oz.	4d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

¼ Rolled plate.....	2½d.
⅜ Rough rolled and rough cast plate	2½d.
½ Rough rolled and rough cast plate	3d.
Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d.
Ditto, tinted	5d.

* Not less than two crates.

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	3
,, ,, ,, in barrels	,,	0	2	4
,, ,, ,, in drums	,,	0	2	6
Boiled ,, ,, in barrels	,,	0	2	6
,, ,, ,, in drums	,,	0	2	9
Turpentine in barrels	,,	0	2	9
,, in drums.....	,,	0	2	11
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		29	15	0
Red Lead, Dry	per ton	28	0	0
Best Linseed Oil Putty	per cwt.	0	9	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon.		
	£	s.	d.
Fine Pale Oak Varnish.....	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak.....	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	9
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	6
Extra Pale French Oil.....	1	1	0
Eggshell Flatting Varnish.....	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper.....	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan.....	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	6
French and Brush Polish.....	0	10	0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the prepaid rate of 28s. per annum, with delivery by *Friday Morning's Post* in London and its suburbs.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 6 p.m. on Wednesday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

*Denotes *accepted*. †Denotes *provisionally accepted*.

BANBURY.—For erection of laundry, for the Banbury Board of Guardians:—
Poulton & Timmins, Reading,* £138 for boiler shaft, and £123 for boiler seatings; Kingerlee & Son, Oxford,* £1,547 for other building work.

BEDFORD.—For motor garage at the Swan Hotel. Mr. Herbert Haines, architect, Bedford:—

E. Cagbeard.....	£1,520	T. Dickins	£1,269
Warton & Dunstall..	1,329	C. Negus	1,268
Corby & Son	1,309	Dawes & Bowler.....	1,275
S. Foster	1,309	W. Laughton*.....	1,210

COLCHESTER.—For erection of farm bailiff's house, for the Corporation:—
Kidman & Sons* £402 12 3

ISLINGTON.—For paving work in Highbury-park. Mr. J. B. Barber, Surveyor, Town Hall, Islington, N.:—

G. Wimpey & Co.	£7,700 5 2
Acme Flooring and Paving Co. (1914), Ltd.	7,191 6 7
G. J. Anderson	7,071 13 8
J. Mowlem & Co., Ltd.....	7,069 18 10
W. Manders & Co.....	6,909 8 7
W. Griffiths & Co., Ltd., Hamilton House, Bishopsgate, E.C.*.....	6,676 16 8

KNARESBOROUGH.—For erection of children's homes, for the Board of Guardians:—

Mason: A. Hymas, Harrogate*.....	£651 0 0
Joiners: Kitching Bros., Knaresborough* ...	349 18 6
Plumber: C. Scholes, Harrogate*.....	203 0 0
Plasterer: R. Fortune, Harrogate*.....	81 10 0
Slater: Rayner, Harrogate*	70 0 0
Painters: Topham Bros., Harrogate*	28 18 6

LEYTON.—Slating work at the baths, for the Leyton Urban District Council:—
Ellis, Partridge, & Co.* £194 11

LONDON.—Enlargement of Kilmorie-road School, for the London County Council:—

W. Downs	£11,382	J. Smith & Sons, Ltd.	£10,209
W. Akers & Co., Ltd.	10,993	W. Smith & Son	10,165
Triggs & Co.	10,841	W. Moss & Sons, Ltd.	10,020
F. & T. Thorn	10,644	F. & H. F. Higgs ..	9,993
G. E. Wallis & Sons, Ltd.	10,560	J. & C. Bowyer, Ltd.	9,989
C. Wall, Ltd.	10,518	H. L. Holloway, Union Works, Church-street, Deptford*	9,876
G. Godson & Sons	10,466		
T. D. Long.....	10,270		

LONDON.—Remodelling Burghley-road School, St. Pancras, for the London County Council:—

Thomas & Edge ...	£19,198	J. Chessum & Sons	£18,386
W. King & Son.....	19,030	W. Lawrence & Son	17,872
Rowley Bros.....	18,967	C. P. Roberts & Co.	17,844
McCormick & Sons, Ltd.	18,733	L. H. & R. Roberts	17,654
G. E. Wallis & Sons, Ltd.	18,656	Brand, Pettit, & Co.	17,368
		J. Willmott & Sons	17,299
J. Smith & Sons, Ltd.	18,549	J. & C. Bowyer, Ltd., Upper Norwood*	17,167

LONDON.—For installation of heating apparatus in Vallance-road School, Whitechapel, for the London County Council:—

Comyn, Ching, & Co., Ltd.....	£1,920 0	Cannon & Hefford	£1,563 0
J. C. Christie ..	1,830 0	J. Cormack & Sons, Ltd.	1,553 0
Wilson & Smith, Ltd.	1,780 0	W. G. Cannon & Sons. Ltd.	1,550 0
Brightside Foundry and Engineering Co., Ltd.	1,725 0	R. H. & J. Pearson, Ltd.	1,519 0
		Acding & Dyne ..	1,329 0
E. Deane & Beale, Ltd.	1,607 10	Palowkar & Sons	1,493 0
H. J. Cash & Co., Ltd.	1,568 0	G. & E. Bradley, 77, Lever-street*	1,469 0

LONDON.—For installation of heating apparatus at Ranelagh-road School, St. George's, Hanover-square, for the London County Council:—

Palowkar & Sons	£1,148 0	J. & F. May	£919 10
Wilson & Smith, Ltd.	934 5	W. Freer	817 10
T. S Knight & Sons	895 0	W. G. Cannon & Sons, Ltd.	00 0
Yetton & Brockett	843 0	Cannon & Hefford, Stanbury-road, Peckham*	707 0
E. Deane & Beal, Ltd.	832 10		

LONDON.—For improvment of heating at Gill-street School, Limehouse, for the London County Council:—

Brightside Foundry and Engineering Co., Ltd.....	£933 0	W. G. Cannon & Sons, Ltd.	£740 0
		Yetton & Brockett	738 0
J. & C. Christie ...	933 0	J. Cormack & Sons, Ltd.	735 0
J. & F. May	815 10		
G. & E. Bradley ...	812 0	Palowkar & Sons, 90-91, Queen-street*	672 0

LONDON.—For installation of heating apparatus at Lower Chapman-street School, St. George's-in-the-East, for the London County Council:—

Cannon & Hefford ...	£1,172	Palowkar & Sons ...	£1,029
G. & E. Bradley.....	1,137	Yetton & Brockett, 33A, Liverpool-street*	947
J. C. Christie	1,100		
J. & F. May.....	1,097		

LONDON.—For installation of heating apparatus at Gipsy-road School, Norwood, for the London County Council:—

J. & F. May	£1,074 0	Wilson & Smith, Ltd.	£1,018 10
E. Deane & Beal, Ltd.	1,062 0	Yetton & Brockett	982 0
Brightside Foundry and Engineering Co., Ltd.	1,035 0	W. G. Cannon & Sons, Ltd., 107, London-road, Southwark*	940 0
Cannon & Hefford	1,029 0		
W. Freer	1,026 0		

LONDON.—For enlargement of Holbeach-road School, Lewisham, for the London County Council:—

W. Downs	£7,056	J. Smith & Sons, Ltd.	£6,278
J. Appleby & Sons, Ltd.	6,988	J. & C. Bowyer, Ltd.	6,264
W. Akers & Co., Ltd.	6,633	Thomas & Edge	6,149
W. Mills & Sons, Ltd.	6,559	W. Mould & Sons, Ltd.	6,083
W. F. Blay, Ltd.	6,465	H. L. Holloway	5,964
G. E. Wallis & Sons, Ltd.	6,446	T. D. Long, Carstreet Works, Deptford*	5,947
W. Smith & Sons	6,337		

LONDON.—Enlargement of Queen's Head-street School, Islington, for the London County Council:—

Ashby & Horner	£9,942	C. P. Roberts & Co., Ltd.	£8,683
Perry & Co. (Bow), Ltd.	9,695	McCormick & Sons, Ltd.	8,398
W. F. Blay, Ltd.	9,592	Rowley Bros.	8,325
G. E. Wallis & Sons, Ltd.	9,351	L. H. & R. Roberts	8,279
J. Chessum & Sons	9,168	J. Willmott & Sons, Hornsey*	7,877
W. Lawrence & Son	8,954		
Brand, Pettit, & Co.	8,690		

LONDON.—For installation of heating apparatus at Capland-street School, Norwood, for the London County Council:—

W. Richardson & Co.	£618 15	R. H. & J. Pearson, Ltd.	£576 0
B. Harlow & Son	591 0	G. Davis	570 0
Brightside Foundry and Engineering Co., Ltd.	585 0	Yetton & Brockett	537 4
Cannon & Hefford	580 0	Palowkar & Sons	533 0
		G. & E. Bradley, 77, Lever-st., E.C.*	509 10

LONDON.—For installing heating apparatus at Oban-street School, Poplar, for the London County Council:—

W. Simmons & Co.	£225 0	Cannon & Hefford	£125 0
J. C. Christie	182 10	W. G. Cannon & Sons, Ltd., 107, London-road, Southwark*	104 10
J. & F. May	159 0		
Palowkar & Sons	143 0		
Yetton & Brockett	138 0		

LONDON.—For cleaning and painting works at Park Hospital, for the Metropolitan Asylums Board:—

A. T. Peyton	£505 0 0	Johns Bros., 132, Albert-road, North Woolwich*	£441 7 6
E. Mills	567 0 0		
Finch & Finch	560 0 0		

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LONDON.—For cleaning, painting, and plastering works at the Eastern Hospital, for the Metropolitan Asylums Board:—

W. Thomerson & Son	£3,350 0 0		
W. Reason	2,999 0 0		
W. J. Simms & Sons	2,720 0 0		
E. Pollard & Co., Ltd.	2,300 0 0		
A. H. Inns	2,233 6 6		
W. Hussey	2,084 0 0		
L. Kazak, Railway-place, Belvedere*	2,077 0 0		

LONDON.—For additions to the Nurses' Home at the South-Eastern Hospital, for the Metropolitan Asylums Board:—

J. W. Trudgett	£798	E. Mills	£639
W. Hussey	790	E. Wall	590
J. Darch	650	H. H. Hollingsworth	575
Howard & Brake	649	W. Reason, 47, Rosebery-avenue, E.C.*	539
L. Kazak	648		

LONDON.—For cleaning and painting works at Grove Hospital, for the Metropolitan Asylums Board:—

E. Pollard & Co., Ltd.	£1,859 10
W. Gibbons	897 0
W. Hussey	799 0
A. H. Inns, 36, Camomile-street, E.C.*	777 0

MAIDENHEAD.—For the steel tubing required for the top sludge water at the sewage works, for the Town Council:—

Wellington Tube Works	£112 15 11
J. Russel & Sons	111 12 5
J. Spencer, Ltd.	108 4 6
J. Brotherton, Ltd.	106 18 10
British Mannesmann Tube Co.	103 4 9
Staffordshire Tube Co.	102 7 2
F. A. Greene	101 12 9
Stewarts & Lloyds	101 11 7

NORTHAMPTON.—For paving land at southern end of Market. Mr. A. Fidler, M.Inst.C.E., Surveyor, Town Hall, Northampton:—

G. W. Souster & Sons, 46a, Lower Mounts, Northampton* £1,043 16 8

PLUMSTEAD.—For covering two reservoirs, for the Metropolitan Water Board:—

	Reinforced Concrete.		Brick.	
T. Bider & Son	£1,092 10 3*		£1,459 19 8	
Holloway Bros.	1,127 0 0		1,290 0 0	
F. Bradford & Co.	1,156 18 2		—	
W. Cubitt & Co.	1,449 0 0		1,727 0 0	
J. Mowlem & Co.	1,657 7 8		1,967 11 11	
T. Docwra & Sons	1,746 10 4		1,971 7 0	

ROMFORD.—For Hornchurch-road and Oldchurch-road improvements, for the Urban District Council:—

W. Jackson* £253 19 9

RYE.—For alterations to the workhouse and heating service, for the Rye Board of Guardians:—

Building.

Palser & Newton	£2,130 16 7
Ellis Bros.	1,370 0 0
Wright & Taylor	1,339 10 0
J. Harvey	1,315 16 9
Burnham & Son	1,186 13 10

Heating.

Prenssion Engineering Co.	£793 18 3	Burnham & Son	£586 16 6
Cormack, Allen, & Co.	671 16 6	J. & F. May	583 0 0
E. Imbusch	660 0 0	Brightside Foundry	572 0 0
Gardiner & Son	644 0 0	Parkers, Ltd.	560 0 0
Barford & Perkins	636 6 0	Bilbe, Hobson, & Co.	549 0 0
Ellis Bros.	619 10 0	F. Davis	539 0 0
Deane & Beale	615 0 0	Watkin & Son	538 5 0
J. Harvey	612 9 9	Gall & Son	532 0 0

[It has been decided to accept Messrs. Burnham's tender for the building at £1,186 13s. 10d., provided they will undertake the hot water and steam service for £550.]

STOKE NEWINGTON.—Repairs to cottages at Stoke Newington reservoirs, for the Metropolitan Water Board:—

G. Keetch	£379 0	Ballard & Hogwood	£310 10
Bate Bros.	366 0	Clemens Bros., Ltd	298 0
A. Porter, Ltd.	349 0	H. Almond*	285 0
W. Oley, Ltd.	315 0		

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STOKE NEWINGTON.—Decoration of "Riversdale," Green-lanes, Stoke Newington, for the Metropolitan Water Board:—

A. Porter, Ltd.	£150 0 0	Bate Bros.	£121 9 6
G. Keetch	144 0 0	Ballard & Hogwood	120 16 0
W. Oley, Ltd.	138 15 0	Clemens Bros.*	115 10 0
H. Almond	125 0 0		

TORQUAY.—For cast-iron pipes, for the first section of the new water-main, for the Town Council:—

Stanton Iron Co., Nottingham* £3,353 10

TORQUAY.—Laying water-main, for the Town Council:—

Duke, Plymouth* £1,679 7

TOTTENHAM.—For erection of estate office on the White Hart-lane Estate, for the London County Council:—

C. J. Twinn	£2,170	C. P. Roberts & Co., Ltd.	£1,558
Marchant, Hirst, & Co.	1,636	H. Nicholls, Ltd.	1,525
A. Monk	1,615	Rowley Bros., Wood Green*	1,329

THINANT.—For extensions, etc., of the Council school, for the Monmouthshire Education Committee:—

C. H. Reed, Newport* £1,372

TUNBRIDGE WELLS.—For alterations to Nos. 12 and 13, London-road, for Messrs. Stevenson, Ltd. Mr. Stanley Philpot, Licentiate R.I.B.A., architect:—

Goodwin Bros.	£993	Soper & Jones, Ltd.	£795
Bates & Sons	848	Strange & Sons, Ltd.	777
J. Jarvis, Ltd.	837		

[All of Tunbridge Wells.]

WEST HAM.—For school for mentally and physically defective children on the Knox-road site. Mr. J. G. Morley, Borough Engineer, Town Hall, West Ham:—

S. Blow, Ltd.	£8,900 0 0	A. E. Symes	£8,709 0 0
A. Webb	7,986 0 0	W. S. Sharpin	6,690 0 0
H. C. Horswill	7,590 0 0	Clark & Son	6,486 11 5
F. J. Coxhead	6,894 0 0	W. J. Maddison	6,355 0 0

WITHAM.—For building a bridge in Guithavon-road, for the Urban District Council:—

McLaughlin & Harvey, London* £370

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